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HOW THE STANLEY BILL (S. 3410)

For Compulsory License of Patents

IMPERILS INVENTORS, MANUFACTURERS, AND THE AMERICAN PATENT SYSTEM.

TESTIMONY OF INVENTORS, MANUFACTURERS, PUBLICISTS AND SCIENTIFIC SOCIETIES WHO SUCCESSFULLY OPPOSED A SIMILAR COMPULSORY LICENSE MEASURE BEFORE THE HOUSE PATENT COMMITTEE IN 1912

Distributed by

AMERICAN PATENT LAW ASSOCIATION

614-619 Washington Loan & Trust Building,

Washington, D. C.

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SENATE COMMITTEE ON PATENTS (April—1922)

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Frank B. Brandegee, of Connecticut.
Richard P. Ernst, of Kentucky.
Ellison D. Smith, of South Carolina.
A. Owsley Stanley, of Kentucky.
Edwin S. Broussard, of Louisiana.

Communications in opposition to the Stanley Bill (S. 3410) may be addressed to Senator Hiram W. Johnson, United States Senate, Washington, D. C., or to any other member of the Committee at the above address.

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PREFACE.

On April 6, 1922, Senator Stanley introduced into the United States Senate a Bill (S. 3410)—understood to be a substitute for S. 3325—providing that every patent "shall contain a proviso to the effect that if such patent so granted is not worked or put in operation so as to result in actual production in the United States of the article disclosed in such patent, in reasonable quantities, within a reasonable time, from the date of its issue, the United States reserves the right to license any person or persons for the purpose of the manufacture, use, and sale in the United States of the subject matter thereof * * * subject to the payment of reasonable royalties to be determined by the Commissioner of Patents or such other governmental agency as the President may direct."

How the royalty for such "compulsory license" shall be determined is not specified in the Stanley Bill, further than that it "shall be fixed in accordance with the number and value of the articles so manufactured," and that it "shall be on an equitable basis according to the circumstances in each case," and that such royalty must be "not less than one-half of 1 per centum of the manufacturing cost" and "not more than 10 per centum of such cost."

On April 6, 1922, the Senate Patent Committee held a hearing at which the substance of the Bill was discussed. Up to that time little opportunity was afforded to inventors, manufacturers, scientific societies and business men's associations to express themselves.

Another hearing on the Stanley Bill, before the Senate Patent Committee, has been set for April 18, 1922, *at*

which it is hoped that opposition commensurate to the peril threatened by the Bill may be vigorously expressed.

"Compulsory license" of patents was proposed, ten years ago, in the so-called Oldfield Bill, and a report in favor of the measure was made by a majority of the then House Patent Committee. So overwhelming, however, was the opposition to the Oldfield Bill by inventors, manufacturers, publicists, patent lawyers, scientific societies, and business men's associations, that the Oldfield Bill was never brought to vote in either branch of Congress.

The Stanley Bill is, if possible, worse than the Oldfield Bill, in that jurisdiction as to "compulsory license" and the royalty therefor is vested, not in the courts, as provided in the Oldfield Bill, but in "the Commissioner of Patents or such other governmental agency as the President may direct," and allows the patent owner no right of appeal to the courts to review any exercise of such jurisdiction.

Under various heads, the following compilation sets forth, in the identical words of the witnesses, the important parts of the testimony on "compulsory license" given in 1912 before the then House Patent Committee. After each quotation, the name of the witness is given, and the page of the printed minutes of the Hearing before the Committee on Patents, House of Representatives, on H. R. 23,417, commonly called the Oldfield Revision and Codification of Patent Statutes, Sixty-second Congress, Second Session, in which these words occur.

Everything said in 1912 against "compulsory license" as proposed in the Oldfield Bill applies with even greater strength against the Stanley Bill. Whatever conclusions, therefore, are derived from the perusal of this compilation result not from argument but simply from such conviction as an absolutely candid statement of the facts must always carry.

We recommend, on behalf of inventors, manufacturers, and the public, all of whom would suffer if the Stanley Bill were enacted, that every legitimate effort be made to prevent this Bill from becoming law.

Respectfully,

April, 1922.

COMMITTEE ON LAWS & RULES,
W. B. KERKAM, Chairman.

BY ORDER OF

Board of Managers,
AMERICAN PATENT LAW ASSOCIATION,
WALLACE R. LANE,
President.

ARTHUR L. BRYANT,
Secretary.

I.

HOW WILL THE ROYALTY FOR "COMPULSORY LICENSE" BE DETERMINED?

The Stanley Bill provides that every patent "shall contain a proviso to the effect that if such patent so granted is not worked or put in operation so as to result in actual production in the United States of the article disclosed in such patent, in reasonable quantities, within a reasonable time, from the date of its issue, the United States reserves the right to license any person or persons for the purpose of the manufacture, use, and sale in the United States of the subject matter thereof * * * subject to the payment of reasonable royalties to be determined by the Commissioner of Patents or such other governmental agency as the President may direct." How the royalty for a "compulsory license" shall be determined is not disclosed, further than that it "shall be fixed in accordance with the number and value of the articles so manufactured," and that it "shall be on an equitable basis according to the circumstances in each case," and that such royalty must be "not less than one-half of 1 per centum of the manufacturing cost" and "not more than 10 per centum of such cost."

Somewhat similar provisions were contained in the Oldfield Bill in 1912, except that jurisdiction over "compulsory license" and the royalty therefor was invested in the courts, and not in "the Commissioner of Patents or such other governmental agency as the President may direct."

Throughout the hearings in 1912 on the Oldfield Bill, inventors, manufacturers, publicists, scientific societies and business men's associations united in emphasizing how impossible it would be for a court to determine a "reasonable" royalty, or an "equitable" royalty, for the "compulsory license" of any invention.

"Everybody realizes that is familar with the past history of the invention, for example, of the wireless telegraph or of the incandescent lamp, or any other important invention—the telephone—that had the terms of royalty been fixed, we will say, the first year of life of that patent, it would almost certainly have been inequitable." (H. Ward Leonard, III, 22.)

"No court," declared a well known patent lawyer, "can reasonably be called upon to estimate the value of a thing whose value depends so much upon future developments, not only future development of the particular invention involved, but also future possibilities with respect to the enlistment of capital, possible changes in laws which would affect the supply and demand—all these things, properly called "futurities," can hardly be considered by any court called upon to estimate the value of an invention for the purpose of fixing the value of a license to make that invention." (Samuel Owen Edmonds, XII, 11.)

A firm of patent attorneys wrote to the House Patent Committee to the same effect:

"Where a license is compelled when the invention is in a relatively imperfect stage no court would fix the royalty at a sum such as would be adequate for the same invention when it has been placed upon a paying basis. When the telephone was devised nobody supposed that it would reach the stage it has now attained or that the value of the patent was anything like the value it subsequently developed. The same may be said of the typewriter. It was many years before the value of the typewriter was universally recognized, and it is certain that had a court in the early stages of the telephone or the typewriter been called upon to fix license fees for improvements in these devices, such fees would have been absurdly small, compared with later estimates." (R. S. & A. B. Lacey, XXVII, 81.)

One of the leading authorities on patent law in this country explained just why the proposal must prove impracticable:

"A royalty is an excellent way to get and give a return, provided things go exactly right and as the parties expect * * *. It is a most difficult thing to determine upon any royalty that is fair to both, whether it is between employer and employee or between an outsider and a manufacturing company * * *. A royalty contract is always subject to controversy. Suppose a man agrees to pay 3 per cent. of the selling price of a device embodying an invention. It may be a simple individual thing, like a razor. If that is so and it never changes, the matter is easy enough. But suppose it is a complicated structure in which one patent after another is added. The first thing you know you have 15 patents at 3 per cent. which would wreck that enterprise.

"There is always sure to come up the question of whether the patent is infringed or not. You know that in 9 patent cases out of 10 the bulk of the argument is as to what the claim means; what it covers. The patentee is perfectly sure to say, 'My claim covers this new thing the licensee makes.' The manufacturer says, 'No; it does not.' The result is that there is sure to be a controversy which may be carried to the courts, and it is for that reason, in so far as it exists, that a self-respecting manufacturer on a large scale, who is making complicated things, may well say, 'I simply can not have a royalty contract with an inventor, because he and I are going to differ as to what is the scope of his claim. I will pay him a lump sum, even if it is a large sum, rather than to take my chances of his giving to those claims a construction that I do not believe is right and which may embarrass me as I build other machinery and devices. I will not take his patent; I will get along without it unless I can clean the whole matter up now.' That is the reason why I personally have advised clients for many

years past never to take a royalty contract if they could help it, except as to patents on individual and specific devices, because there is always sure to be a controversy as to the construction of the patent and therefore of the scope of the agreement to pay royalty." (Frederick P. Fish, XXVI, 29-30.)

How "compulsory license" would work, from the point of view of a practical manufacturer and inventor, was explained by a well known manufacturer and inventor of printing machinery with an illustration from his own experience:

"Cottrell & Babcock being a new firm, building the same type of press, with nothing special to recommend it over the older manufacturers, who already had the business, were having a hard time to make any headway. At this time there were no patents on cylinder printing presses. Mr. Cottrell realized that in order to make a success he must build a press that would have some distinctive features to make it better than those of its competitors * * *. Mr. Cottrell built a press with the Taylor air spring and experimented with it until he obviated every difficulty wtih the spring. He then had a press that could be run at a one-third higher speed than the presses of his competitors, and was practically noiseless. He took out several patents on this improvement, and the security thus given him as the result of his genius and labor built up a great business which otherwise might have been a failure. * * * Every competitor of his saw its value, but it would have been impossible to get from any court an adequate fee. The Cottrell press with the new air spring sold at the same price as the presses of competitors—there was no overwhelming demand for his improved presses—so what evidence could he have produced in court justifying a liberal license fee? And yet, as after events proved, Mr. Cottrell's whole great business was built up by the exclusive use

for 17 years of these early air-spring patents." (C. B. Cottrell & Sons Co., XVI, 6.)

The Curtis Stearns turbine is a notable instance in point:

"Take this Curtis turbine; the mere fact that you find them everywhere in this country, that $50,000,000 worth of them have been marketed, indicates how much they have had to do with the progress of the useful arts. The Parsons turbine is another type. At the end of four years, after the date of the Curtis patent, in 1900, the owners of the Parsons, for instance, could have gone to the owners of the Curtis patents, and said, 'We want a license,' and there would have been no answer to the request, because the Curtis people had not been able to put out a single machine. That frequently happens. Often at the end of four years, or five or six or seven years, the man who owns the patent, who stakes his all upon it, has not been able to get anywhere, and yet he lives in hope. He says, 'If you let me alone I will get there before the end of the term of the patent.'

"I have not the slightest doubt that in 1900 you could have put 40 experts on the stand who would have said: 'The Curtis turbine is not worth a cent. The General Electric Co. has spent millions on it and has not succeeded. Here is a man who wants a license. If he pays a cent a kilowatt, it will be just so much clear gain to the Curtis interests.' "What is the court going to say?" (Frederick P. Fish, XXVI, 26.)

The street railway business, in its electrical development, illustrates the difficulty of any royalty compensation for a "compulsory license":

"I myself have seen over and over again the most extreme errors in this matter of royalty. I remember very well when the Thomson-Houston Co. decided to go into the street railway business. It had to buy the Van de Poele patents. The Van de Poele Co. had been struggling along for years and had failed. As part of the transac-

tion there was to be paid for these Van de Poele patents a royalty of $50 a car. They also agreed to pay Van de Poele personally $5 a car, which ultimately made Mr. Van de Poele a rich man. At that time the Thomson-Houston Co. was selling the 15 horsepower motor equipments for $3,250 a car, and there was not so very much profit in it. It was not two years before it was selling a better equipment at $700 a car, and if that royalty of $50 had continued it would have killed the business. It so happened that the Van de Poele Co. was discouraged at the situation and soon after the contract took a certain sum in place of all future royalties, so that the Thomson-Houston Co. did not have the burden. This shows how even intelligent business men can fail to deal with such a question. No court could grapple with it at all." (Frederick P. Fish, XXVI, 26.)

All these objections, of course, apply more strongly to the present Stanley Bill than they ever applied to the Oldfield Bill, because the Oldfield Bill left to the courts the determination of the royalty for "compulsory license," while the present Stanley Bill leaves this determination to "the Commissioner of Patents or such other governmental agency as the President may direct," and allows the patent owner no right of appeal to the courts to review any such determination.

The chief engineer of a well known concern engaged in developing and manufacturing hoisting machinery, added another illustration:

"The cableways produced by our company were sold outright at a very much less price. They were all patented. The commercial pirate saw the machine and wanted to copy it. He could have obtained 99 hundredths of that machine without infringing on a patent. The difference between success and failure was a device known as a 'fall carrier' or rope support. * * * Now we have five or six other patents on fall rope carriers, none of which was as good as the one presented, but any one of which

would do the work. Under the compulsory-license law, we would have lost all the advantage of 99 per cent. of the machine that had been produced at tremendous expense if the commercial pirate could obtain a compulsory license for the fall rope carriers. The clause proposed leaves it to a district judge to fix the royalty. What would a district judge say when a man comes before him and says, 'I want to build that carrier?' The judge says, 'How much does the carrier cost?' He replies, '$50.' 'Well,' the judge says, 'you pay a royalty of 10 per cent.; that is $5.' Now, we lost the sale of cableways, at $12,000 each, on which we made, and our compulsory licensee gets all the advantage for perhaps $50 or $100 royalty." (Spencer Miller, XXIV, 15-16.)

The burden of litigation entailed upon the patent owner by the procedure for granting "compulsory licenses" was emphasized by a number of witnesses:

"The provision for compelling a license," said the vice-president of the Patent Law Association of Washington, "attaches to every patent the liability of defending such a proceeding, and imposes upon the patentee, or his assignee, the burden of defending such a proceeding. No court would undertake to prescribe the terms and conditions of a license, without a full showing of the facts by both sides as a basis for a judgment as to what terms and conditions would be fair.

"I doubt if it would be possible, even after the most exhaustive investigation or trial of such a question, and a submission to the tribunal of all available facts, to make an arbitrary decision which would ultimately prove fair and equitable both to the licensor and licensee. On the one hand, further development of the invention might demonstrate the utter inadequacy of the reward prescribed by the court for its use. On the other hand, developments might show that the disclosure in the patent constituted but the germ of the real discovery or invention, in itself impracticable and of no value, but when developed and

perfected by the scientific knowledge and ingenuity of men trained in the practical development of the arts might become of great value. The value, however, would reside largely in the new discoveries, or improvements, without which the old invention would have been valueless. In such a case the royalty prescribed under the original patent might be grossly excessive, or the later inventors be deprived of their just proportion of the reward; else the cost of the invention would be increased beyond the value of its use by the successive royalties, and failure result from want of a market.

"Whatever conclusion the court might reach, and whether fair or unfair, could only be reached after proceedings quite as exhaustive and expensive as ordinary suits for infringement, and the possibility of such a burden of expense attached to a patent from the moment it is granted would place upon it such a handicap as to practically take it out of consideration so far as interesting capital for its exploitation is concerned." (E. W. Bradford, XXVII, 48, 49.)

"It will always be an expensive matter," wrote the Merchants' Association of New York, "for the average patentee to produce evidence in court in support of his side of the case in such a court proceeding; and while this proceeding is instituted for the purpose of determining what compensation the patentee is to receive for the license, such compensation can in most cases not stand in fair relation to the value of the invention. It is obvious that while the patent constitutes a true monopoly, it has a much greater value than when its monopoly is violently destroyed by permitting one or more others, and potentially everybody, to share in the same. The holder of the original patent in order to protect his rights would have to disclose many business secrets, and such suits would often be brought merely for the purpose of forcing such a disclosure and not for the bona fide purpose of obtaining such a license." (S. Christy Mead, XIX, 4.)

The resulting advantage from this condition of affairs must necessarily favor the large corporation as against the ordinary patent owner. The predicament which the patent owner would be in was well described by one manufacturer:

"He must retain a patent counsel and they are an expensive class of counsel. He must fight a long-drawn out and costly suit, involving many pages of typewritten testimony, printed briefs, printed records, and numerous other items of cost incident to even ordinary litigation, and in a case of this kind, it will be extraordinary litigation. He may be too poor and friendless to do these things, and the case goes against him by default. He is ruined." (M. Dorian, VIII, 11.)

"How will the court determine what is adequate compensation?" asked a patent attorney, and then proceeded to answer his own question. "By testimony submitted before it. Who will furnish the bulk of such testimony? The paid experts of the corporation suing for compulsory licenses. These experts will come primed with "cost data" to establish high manufacturing and selling costs. They will be in a position of great vantage, and the court will not be able to determine, in most cases, whether the testimony given as to manufacturing costs and as to selling costs is correct or misleading." (R. S. & A. B. Lacey, XXVII, 96.)

"The effect of such laws, if adopted," said the president of the Patent Law Association of Washington, "will be to benefit the very combinations at which the bills are aimed. They may easily follow the onerous provisions and may harass every individual under the aegis of the law.

"The inventor will then find it still harder to secure capital. As it is now the law enables him to get his patent in advance, even of the demand. He seldom can interest capital until he has his patent, but under such provisions the most friendly capital will not take the risk of having to meet the burdensome and harassing litigation liable to

be thus imposed. The litigation now required to maintain a patent is certainly sufficient without imposing this most vexatious of all forms of litigation." (Walter F. Rogers, XXVII, 12.)

How, after having fixed the amount of royalty for the first applicant, the amount of royalty for the second, third and fourth applicants could be determined, is hard to conceive:

"Assuming that the court itself grants an adequate license fee or royalty in the case of the first licensee," inquired one witness, "is it probable that with each successive licensee the value of the license would be reduced? A court would certainly not hold that a nonexclusive license was as valuable as an exclusive license. The court would have to take into consideration that licenses of the invention would spring up on all sides, and that a manufacturer would be utterly incapable of knowing whether he would control the trade or a particular section. There would be no certainty in the business of the manufacturer, and he would feel that after he had spent a large amount of money in advertising and in creating a demand for an article in a certain section, the trade of that section might be taken very largely or entirely away from him because of the appearance of competing manufacturers." (R. S. & A. B. Lacey, XXVII, 79.)

Let it again be noted that while the Oldfield Bill left it to the courts to determine the royalty for "compulsory license," the present Stanley Bill leaves this determination to "the Commissioner of Patents or such other governmental agency as the President may direct," and allows the patent owner no right of appeal to the courts to review any such determination.

"To render the provision effective," explained a patent lawyer discussing the Oldfield Bill in 1912, "the section endows the Federal District courts with powers which practically constitute the 72 Federal District Courts into courts of patent commerce, so that the bill, as a law,

would create this number of patent commerce courts in the United States. As now worked, the section is not limited to any type, class, or group of inventions. It is sweeping, all inclusive. It embraces collar buttons and steamships, tooth-brushes and transportation systems, toilet articles and safety-appliance systems, telegraph systems and tools, articles and devices limited in use to isolated industries and articles that go on the tables of the people, garments and foodstuffs, patent roads and buildings, inventions which have a restricted use in special fields and those which affect the great mass. In short, so sweeping are the powers created by the proposed law as to give the District Federal Courts jurisdiction over all fields of commerce." (R. S. & A. B. Lacey, XXVII, 94.)

If the Federal Courts, in 1912, were unfitted to exercise such uncontrolled jurisdiction, how can it be urged, in 1922, that such limitless powers should be vested in "the Commissioner of Patents or such other governmental agency as the President may direct," with no right in the patent owner to appeal to the courts to review any abuse of such power?

II.

HOW WILL "COMPULSORY LICENSE" AFFECT AN INVENTOR ENDEAVORING TO DISPOSE OF HIS INVENTION?

The long time that almost invariably is required to develop and introduce an invention after it has been patented is the inevitable and all-important condition that limits the value of the invention.

"Seventeen years," said one of Edison's former pupils speaking before the House Patent Committee in 1912, "is a very short time and conveys a very false impression. No patent of merit has ever been brought to marketable conditions as an average in less than about ten years. The effective life of the patent is about seven years, not more. No patent that comes out of the Patent Office of merit is effective immediately." (H. Ward Leonard, IV, 24.)

"As a rule," said the chairman of the professional committee of the Inventors' Guild, "it takes seven or eight and sometimes ten and twelve or even fifteen years to develop an absolutely new invention. When I say 'absolutely new invention,' I mean an invention that relates to some patent that has not been developed before to any extent." (F. L. Wadsworth, XXI, 14.)

"If a man conceive an invention and gets his patent upon it," said the manager of a well-known concern, "his troubles, as I said before, have only just begun. Suppose he has got something of value. Usually from three to five years are occupied before he actually gets it on the market, no matter how valuable his invention is, and this is a situation that, so far as I have been able to ascertain, does not seem to have been brought before this committee. Apparently, the inventor is given his seventeen years' monoply, but out of that time, before he actually gets a market for his product or for his invention, assuming that he himself is capable of manufacturing it, he loses from

three to five years in getting it introduced." (Edwin Fairfax Naulty, III, 7.)

One of the legal advisers of the General Electric Company illustrated this point with the story of the Curtis steam turbine:

"The patent for a steam turbine," he said, "was taken out in 1896 by a man named Curtis. He came to the General Electric Co.; he came to me. I thought it was a very remarkable idea, and the result was that the General Electric Co. took hold of it under a contract by which they were not obliged to pay him a cent for two years. They knew they could not get the invention into commercial shape in less than that time. At the end of two years the contract was extended. The result finally was that seven or eight years after the date of that patent, when the turbine was in commercial shape, the General Electric Co. had spent millions of dollars developing it before they began getting any returns. Since that time machines built under that patent have been sold to the extent of $50,000,000 in this country, and it is a wonderful success, which has promoted our useful arts to a most extraordinary degree. Today they are designing a 45,000 horse-power machine of that type. The inventor himself made a fortune from the transaction. That is a typical case of those inventions which promote the useful arts to the greatest degree.

"What would have happened if there had been any such thing as a compulsory license in the law? The patentee would have struggled against hope. The General Electric Co. would have said: 'This is the sort of thing that will take five or six or seven years to complete, and then we may fail, and at the end of four or five years if it is not on the market somebody may get a compulsory license.' No one would touch the enterprise. If you have any sort of compulsory license in the law, the mere fact that you say to the inventor, 'You shall no longer have those seventeen years in which you can absolutely control the inven-

tion,' will mean that the inventor's situation will be hopeless as far as the large inventions and most small ones are concerned.

"Under modern conditions there is rarely an instance where the inventor can get into the market unless there is capital behind him. This big country has to be covered by organization, and that requires capital. If, with the chances of failure, with the chances of being superseded, and of not being able to get a market that exists at the present time, and with all other chances, it is provided by law that after a comparatively short time, or after any time, there can be a compulsory license on any terms, the capitalist will say, 'I won't touch it,' and the inventor will have nobody to supply the money that he needs for development, because no one will buy the patent of him and no one will cooperate with him in developing an industry under it.

"The inventor needs not merely money; he needs business brains; he needs business organization; he needs intelligence in designing machinery and a number of other things, all of which he is able to get now because of the faith there is in the capitalist, the manufacturer and the inventor that during these seventeen years something will happen by which his invention will turn out all right." (Frederick P. Fish, XXVI, 23, 24.)

The expense involved in the experimental process of developing and introducing an invention after it has been patented is always prolonged and uncertain, and generally greater in proportion as the invention is more important.

"I know," said the president of the American Institute of Chemical Engineers, "many patents which cannot be worked except after the inventor has found capitalists to furnish him, say, $500,000 or $1,000,000. I have been personally identified with such enterprises where they could only begin to work an invention after investing to the extent of $1,200,000 for plans only. They did not even know then whether it was going to work. It was

purely a gamble up to that point." (Dr. L. H. Baekeland, IV, 42.)

"A man may, for instance," said a trade editor, "secure a patent on a devise that is very useful—exceedingly useful—yet, owing to the machinery that exists, the dies, etc., for constructing that device, it may be impossible for him to put it on the market so as to maintain its position on the market. He may then be compelled, as I have been compelled in several cases, to devote whole years to the preparation and devising of machinery to manufacture a quantity at such a figure as to render its general sale possible." (Joseph J. O'Brien, VI, 22.)

"I am the inventor of a system of electrical locomotives which was applied in Switzerland," said a leading independent inventor, "and I happen to know that the application of it there, under license of my patent, to put the first locomotive in operation, required an expenditure of half a million dollars to test the thing out." (H. Ward Leonard, III, 18.)

How these difficulties have hindered the development and introduction of some of the most successful inventions appeared from specific instances described in 1912 before the House Patent Committee:

"In my particular case," said a successful inventor, "I have been quite fortunate, and some one has stepped in and paid a salary nearly all these years—that is, I have received between $35,000 and $40,000 in salary, largely along inventions which the public has not yet paid for, simply because it has taken so long to bring them on the market, and the history of my case is the same which is repeated with the McMillan typesetter and the Paige typesetter. The Mergenthaler had almost as long a history before it managed to get the attention of Mr. Philip Dodge, who put the Mergenthaler typesetting machine on a paying basis after an enormous effort." (Benjamin M. Des Jardins, XXI, 6.)

"I asked Mr. Ingersoll of the Ingersoll Watch Company," said one of the witnesses before the Committee, "how long it took after his first patent was granted to get a watch on the market, and he said from five to six years. I asked what it cost to do it, and he said about $51,000 before they were able to sell their first watch." (William W. Dodge, XXVII, 35.)

"This little Blickensderfer typewriter," continued the same witness, "with which the public is familiar, I am credibly informed, involved an outlay of over $400,000 before the machine was ready for the market, and consumed years of the term of the first patent before it was placed upon the market." (William W. Dodge, XXVII, 35.)

Already the risk, which the patent owner assumes, that some rival may parallel or improve upon his invention, after he has patented it or while he is developing and introducing it, is very serious.

"It has been my experience in the electrical industry," said the president of an independent electrical company, "that the life of improvements is very limited. As a matter of fact, I have had improvements, that I have made myself, absolutely nullified and eliminated by further improvements, made by myself or made by others before the patent on the initial improvement is even issued from the Patent Office. In other words, an improvement may not have lasted more than a year or two years." (Arthur C. Eastwood, XV, 9.)

"I have in mind one inventor, who is very close to me," said a Washington patent attorney, "who has for the last eight years been working at nothing else but a very valuable system for use on railroads, and it is effective. The invention has been perfected, and it has even been put into operation. Yet, it took him eight years to finally get the improvements necessary to make his original invention a success, and I dare say that even now it is open to some other radical improvements which will make it the more effective, and if he gets into the market, as he

expects to do, he will be in competition with the big interests; and they have their corps of experts and inventors whom they will immediately proceed to have them either parallel his device or to effectively improve it." (Hugh M. Sterling, VI, 4.)

All these difficulties directly affect the original inventor when he seeks to dispose of his original invention.

"In order that the inventor should receive his fair share," said Mr. Louis D. Brandeis now Associate Justice of the Supreme Court of the United States, "there must be an attractive proposition for the capitalist." (Louis D. Brandeis, XVIII, 10.)

The same principle was laid down by an advertising expert:

"In order for that inventor to get his price from the rich man who buys the invention, you have got to make it worth while to that rich man so that he can get his money back. It is most important to remember that. Take Gray, and his steel-beam mill, and take the case of Dow, the real original inventor of the steam turbine. What happened? He could not interest capital; they would not buy his invention. Now, why would not they buy his invention? The same situation holds true in hundreds of other cases. The reason they will not buy is because they do not see how they are going to come out commercially with the article." (J. George Frederick, IX, 23.)

III.

HOW WILL "COMPULSORY LICENSE" AFFECT A CONCERN ENDEAVORING TO "SUPPRESS" AN INVENTION?

The protection of the patent laws, as has been shown, is the inducement that persuades inventors to patent their inventions, thereby making them known to everybody, with the result that after the lapse of seventeen years, when the patent expires, anybody may freely use the invention. Already the protection afforded by the existing patent laws has not proved sufficient to induce some independent inventors to disclose their inventions.

"I have several things," said a leading member of the Inventors' Guild addressing the House Patent Committee in 1912, "which I found it would be practically impossible for me to get patents on which could be protected. I am manufacturing them and have been for years. They are in the nature of enamel processes, and the ingredients of those enamels and the formulae and the method of treating and handling are matters which have never been public, and to a large degree they tend to protect me. If the patent laws were such as they should be, if I really could get the protection that it was the intention of our patent law that I should get I would have published all those things and gotten the patents, but I know from experience that the publication of those things, the full publication of them, would merely mean that I would be wiped out completely by the competition." (H. Ward Leonard, IV, 23, 24.)

"Compulsory license" would aggravate this situation. As a leader of the patent bar explained:

"Any quantity of inventions that are made will, if there is a compulsory license provision in the law, be suppressed because they will not be patented at all. The inventor will say, 'I am not going to run the risk of having to

give compulsory licenses. I will take the chance of somebody else rediscovering this secondary idea of mine.' And that would hurt the patent system beyond expression." (Frederick P. Fish, XXVI, 26.)

How a strong concern, desiring to suppress an invention belonging to a weak rival, could accomplish its purpose by the procedure for "compulsory license" was described by the counsel for the Singer Sewing Machine Company:

"I tell you that the compulsory license clause will enable every big fellow to drive out the little fellows, and I will tell you how they can do it.

"Take, for example, the Singer Company—if you can give me this compulsory license clause, as the counsel of the Singer Company I can clean up every other company in the United States within a few years who are manufacturing anything in the special sewing machine line. I will tell you how I could do it.

"I will go after, for instance, the Union Special Company. They are opponents of the Singer Company. They are the most enterprising people I ever knew, and the only thing that keeps them in the business against the Singer Company is their enterprise. They have these experimenting rooms such as I have described a moment ago—I think one in Chicago and another in New York—under men who are perfect princes of inventors, and they have a great many patents; and the Singer Company does not dare touch those patents. The result is that they are keeping right in the business, although they are a small concern. I could, in the experimenting room of the Singer Company, make an improvement on some one of those patents that I want to use, and then I could, in behalf of the Singer Company, ask for licenses under this patent of the Union Special Company." * * * "Suppose they each had a license; how long would the Union Special Company stand as against the Singer Company when they have each a license under the same

patent? The Singer Company has perhaps 6,000 agents all over the country. These are not only ready to sell their machines, but they are on the spot to keep their machines in order, so that when a user of a machine wishes it fixed or finds any difficulty with it, he can go right to an agent near at hand and get that thing attended to. The Union Special Company has its head offices in, we will say, Chicago, and a branch office in a few cities of the United States. Put those people on equal footing, where each one has a license under the other's patent; how then can the Union Special Company stand against the Singer Company?

"Besides that, in the matter of manufacture, look at the advantage that the Singer Company would have—and I am speaking against my own client now. They have automatic machinery that will turn out these machines in duplicate cheaper than any other concern can do it, probably.

"I mentioned the Union Special Company but I might mention a half dozen others. I could mention the Reede Company, for instance. You take any one of the small special sewing-machine concerns of the United States, and give me that compulsory license clause, and I will clean them up inside of five years." (Livingston Gifford, XIV, 14b, 14c.)

The hardship that "compulsory license" would entail upon a weak manufacturer struggling to develop and exploit an invention was graphically described in 1912 before the House Patent Committee:

"He may have impoverished himself and his family in bringing his invention to the point where it could be covered by an application; he may find it necessary to improve and protect it, and may, in fact, have reached the point where he has succeeded in doing this, and is ready to begin the actual manufacture, but is at the end of his resources for the moment.

"He has put every dollar he had in the inaugurating of that invention, and he has got it now where he has something he can go to a capitalist with, and say, 'Here, I want money to advance it.'

"Just at that psychological moment comes this summons to appear and show cause why he should not be compelled to grant a license. It may be, and in many cases will be, a fact that the summons has been craftily timed for just the moment; that there will be a number of them either as the result of a well-laid conspiracy or pure accident, because if he has got a good invention, because if has got a good thing there will be numbers of people watching that very moment when the four years have expired to bring in their summons and claim the license under it. Just when the poor inventor sees an end to all his struggles and sacrifices and success within reach, he is smothered, annihilated, by a storm which carries him and all belonging to him to destruction." (M. Dorian, VIII, 11b.)

"You place this power in the hands of big corporations," said a representative of the Patent Law Association of Washington," and they do not want anything better. But the little manufacturer, with his patent, the only thing that enables him to exist in the manufacturing line today, would be taken away." (William W. Dodge, XVII, 41.)

Some of the witnesses before the House Patent Committee in 1912 did not mince words:

"I fear myself," said one, "that if the bill as it now stands passes we shall have a wholesale system of cunning piracy on the part of the big corporations and which will lead to the loss of what little independence the foremost inventors now have, and which the younger inventors are striving to secure, without any sacrifice to their principles of honor or manhood." (Joseph J. O'Brien, VI, 21, 22.)

IV.

HOW WILL "COMPULSORY LICENSE" AFFECT A PATENT-OWNER ENDEAVORING TO DEVELOP AN INVENTION?

The mere failure of a patent owner to raise the capital whereby his patent may be "worked or put in operation so as to result in actual production in the United States of the article disclosed in such patent, in reasonable quantities, within a reasonable time, from the date of its issue," whatever "a reasonable time" may be within the meaning of the present Stanley Bill, renders the patent owner, without further act on his part, subject to "compulsory license."

The patent owner may thus become liable to "compulsory license" because of conditions entirely beyond his control.

"The effect of the compulsory license clause, in many cases at least," said a well know patent lawyer speaking before the House Patent Committee in 1912, "would be to penalize the patents for the public's lack of appreciation of the merit of his invention. That also seems perfectly clear. You may go back in the history of the development of inventions practically to the beginning of our patent system and find thousands and thousands of cases where it was just because of this lack of appreciation by the public that the patentee's invention, however meritorious, did not see its way into public use * * * The effect of the compulsory license clause, would be to penalize the poor patentee because of his poverty." (Samuel Owen Edmonds, XII, 8.)

Even under the existing patent laws, the difficulties presented in the development and introduction of new inventions tax the persistence and resources of the ablest manufacturers.

"In one instance," said the chief engineer of a well

known concern, "I labored for four years, and the company went into the treasury for at least $50,000 in order that we might solve the problem of taking cypress logs out of the swamps of Louisiana cheaply and regularly. When I began, no one could obtain a constant supply of cypress logs for even $8 per thousand. When we were through, a constant supply of cypress logs from the swamps could be had for $3.85 per thousand.

"Nobody troubled us in the experimental period. Nobody troubled us when our cash account was wrong. Nobody cared what I was doing, so long as we were only selling a few machines. After four years of labor, financial loss, and personal discomfort—for I assure you, I have slept in swamps with lizards about my bed and poisonous snakes under my camp, taking chances of catching malaria in order that I might know everything about the requirements—I had just about reached the point where the machine was ready to be introduced on a large scale when a rival entered the swamps and absolutely took measurements and made drawings of everything we had produced. He reproduced the machine for a thousand dollars less than we were asking, and our business was gone. We were paying the inventor $500 for a machine we were selling for $5,000. The rival did not have to pay that $500. His program was to build the machine and let us or the inventor sue. There was not enough in the business; there was not field enough to warrant an extended suit a long distance from our works. We had invested our money in producing a machine that would save millions of dollars to the people of Louisiana; and I say that advisedly, for many men whom we could hardly trust for a $5,000 machine are worth $5,000,000 today. They made it out of cypress. They were clever enough when they saw that the problem had been solved to buy up cypress swamps at from $1 to $2 per acre that are today selling for $75 per acre." (Spencer Miller, XXIV, 8-9.)

A veteran printing-machinery manufacturer added an illustration from the history of his own business:

"The history of our Cottrell rotary multicolor press is a vivid example.

"Experimenting began on this machine in 1900—12 years ago—and continued 10 years without cessation before the first perfected machine was in practical daily use in a purchaser's plant.

"We had long built rotary presses printing in four colors, but only for special work of rough character. * * * In 1900 we began to consider means for adapting this rough-color printing press for fine work. As fine color printing required 'make-ready' and as 'make-ready' of several colors was not possible on the one impression cylinder of our press, it was absolutely necessary to find means to put the 'make-ready' in the plates themselves. This meant deep investigation into the processes of engraving and electrotyping along entirely new lines.

"The problem was presented to the most skillful pressman and engraver we knew, and he entered our employ to work it out. It is not necessary to enter into technical details, except to say that the basic problem was means to so prepare the printing plates that no make-ready (so-called in the trade) would be necessary on the press. This problem of a self-printing plate was solved successfully in 1901, and immediate application for a patent was made. This process was a mechanical success, and the next step was obviously to devise means to utilize it commercially. A press was built somewhat on the principles of our old color presses, and for three years the patient, expensive, heart-breaking experimenting went on. To carry out the details of the new process, a special hydraulic press had to be built, and other special machinery, each one as developments of the experiments compelled. Then it was found that the press was not strong enough, so an entirely new one had to be designed and built. When the process of treating the plates was satisfactory,

and the new press was running properly, then it was found that the idea of printing one color upon another, while still wet, was impracticable with any printing inks then on the market. An ink chemist was employed who spent over a year in the unsuccessful effort to produce inks of the desired character. Then the problem was placed in the hands of a practical printing-ink maker, who finally succeeded after months of experimental work.

"Then, having the process, the press, and the inks, the result was still uncertain, and not entirely satisfactory. It was finally discovered that the arrangement of the printing cylinders was at fault. They were arranged vertically, so that the lowest one was near the floor and the upper one near the ceiling. This subjected them to different degrees of temperature, which affected the working of the inks. Another press was therefore designed and built with horizontal arrangement of cylinders, bringing them all into the same zone of temperature, and then the results were satisfactory in all respects." * * *

"The usual method of printing fine color work is to print one color and let it dry, then print a second color and let it dry, and so proceed until all the colors are in place. The sheets of paper have to go through the press, once for each color. With the new rotary multicolor press, on the contrary, the sheets go through the press but once. White paper is fed in at one end of the press and comes out at the other with all colors in proper place, completing the finished picture at one operation with a perfection heretofore unknown and a speed and economy heretofore undreamed of. The superb colored covers and inside pages of the Ladies' Home Journal are samples of the work of the press.

"Meanwhile attempts were made to interest publishers and printers in the press and process, but with little success. * * * Finally in desperation we offered to install the press at our own expense in a large publishing concern, and furnish our experience and assistance in trying

it out. Even then they ran that machine nine months every day before they were ready to give us their first order.

"No time was lost, and yet for ten years we poured money, money, money into this idea before we could sell the first rotary multicolor press." * * * As a result of our patent protection the public is getting at nominal cost a character of color printing which a few years ago could only be secured, if at all, in art stores at very high prices. Without this protection the risk would have been too great to justify the course we took. Any license to a competing manufacturer, or to anybody else, at any price would be fatal to our enterprise." (Edgar H. Cottrell, XVI, 8-9.)

Under the present Stanley Bill, pioneer inventions of the utmost value, which might be delayed in development because of the backwardness of the existing art, would become subject to "compulsory license."

"Suppose," said a leading electrical inventor, addressing the House Patent Committee in 1912, "that I have an American patent; I would be obliged to manufacture it after four years or be subject to the compulsory license feature. We will suppose it is an electric locomotive, a large affair, that I have not the capital to handle, and we will suppose, as would be quite evident, that I take that away to one of these large corporations? I say, 'Here is a patent which has some good claims in it.' They will say, 'We do not want that at present. It is ahead of time, and if we do buy it, it would be merely with the idea of guarding against the future. It is of little value anyhow, because it will not be reached in four years; that is quite clear, and unless we manufacture it in four years, which we probably will not, the result will be that we will be forced by this act to grant a license to some one else, and therefore we do not have any monopoly." (H. Ward Leonard, IV, 19).

How "compulsory license" would have affected the de

velopment of the rotary press was explained to the House Patent Committee in 1912, by one of the leaders in the industry:

"Prior to 1890," he stated, "rotary presses printing both sides of the sheet from a roll of paper were in general use for newspapers. Occasional attempts had been made to adapt such presses to the printing of illustrated periodicals, but without success, because the hard surface of such papers did not promptly absorb the ink; this wet ink would get off on the impression surface and smear or smut the succeeding sheets. Mr. Cottrell worked out and patented an 'automatic' shifting tympan which he believed would meet this difficulty, but it was in advance of the times, and for some years he could find no publisher who wanted to buy such a press.

"However, the time finally came when the Youth's Companion, a weekly illustrated paper, of Boston, was forced to seek new and faster printing methods. * * * They finally agreed to buy such a press if one should be built which would print their paper satisfactorily. This was pioneer work, creating entirely new mechanism, and had to be built entirely at Mr. Cottrell's risk. After months of work, at great expense, a press was designed and built adapting the rotary perfecting principle to the production of high-class printing. When it was tested at the works it was found that the patented offset mechanism was a failure.

"A long and tedious series of experiments was undertaken, finally producing an entirely new type of shifting tympan on the rotary press which was patented, which would turn out printing equal in quality to that previously done on flat-bed presses, delivering sheets printed on both sides at the rate of 4,500 per hour; whereas, each flat-bed press printed but one side of the sheet at a speed of only 1,200 per hour. That is, one rotary press with a pressman and a helper produced as much as eight flat-bed presses with four pressman and eight feeders.

"It would seem that immediate sales of large numbers of these presses would follow such an invention with substantial profits. As a matter of fact, it was a year and a half before a second one was sold, and that was bought by the same firm, the Youth's Companion. It was found that large sums had been spent in developing the machine, for which the demand was very limited, because there were few illustrated publications with circulations sufficient to require such a machine.

"When the first four years of these patents had expired if a demand had been made for a compulsory license, as proposed in the new patent laws, what showing could we have made to the court? Only a few presses built and a large amount of money spent with slight expectations of every getting it back. However, as time passed, a few far-seeing men of ambition in the publishing business were willing to 'take a chance' on the success of high-grade periodicals at a low price, made possible by the economy of manufacture produced by Mr. Cottrell's new rotary perfecting presses. The amazing growth of nationwide circulations, due to low subscription prices, is a matter of comparatively recent history." (Edgar H. Cottrell, XVI, 7.)

A very recent case in point was described to the House Patent Committee in 1912 by a firm of Washington patent attorneys:

"A client of ours," they wrote, "devised a certain entirely new form of furnace. We are informed that only one patent has been granted upon this form of furnace and that to the inventor in question. The patent was issued some six years ago. At the time it was issued it was in advance of the art. It was based upon a very little known chemical principle which had never been applied to furnaces, and the invention was regarded as impractical. The invention was such that in order to give a thorough trial it would have been necessary to expend at least $25,000 and probably more. The inventor was practically

penniless, and often found it difficult to provide for even the simplest needs of his family. Under the circumstances, he himself could not possibly work the invention, nor could he interest any company of sufficient size to even experiment with it. They did not understand it; they regarded it as impractical and purely theoretical.

"Last year a certain European scientist of reputation conducted a series of experiments on the combustion of gases. In the course of these experiments he evolved very much the same ideas as did our client, and he published the results of these experiments together with his theories on the subject. He was a man of such standing that his word carried weight, and as a consequence what was before regarded as entirely impractical is today regarded as at least feasible from an operative standpoint; so that now, six years after the grant of his patent, the inventor is just in a position to get his invention adopted and placed upon the market.

"If this law is to go into effect, an inventor under circumstances the same as above related would lose the right to a monopoly of his invention, the right to make adequate terms upon which it could be used or manufactured; and through no fault of his own, but simply because the average knowledge of the world lagged behind his inspiration. He could no longer obtain the price for his invention, which he might if there was no compulsory license law, because the first company to whom he could present the invention would insist that the value of the patent was very much reduced, by reason of the fact that other companies could come into the market by securing a license under the patent. It might be that no other companies would desire to secure a license, or that few companies would; but neverthelss this excuse would be used by the first company. The inventor would get a comparatively inadequate return, and he might never be adequately compensated." (R. S. & A. B. Lacey, XXVII. 78, 79.)

Independent inventors and manufacturers all agree that an invention can be adequately protected only by patents covering not merely the form of the invention that has proved most satisfactorily, but also all other forms that can accomplish the same purpose, even in a less satisfactory fashion.

"Suppose," said an officer of the Inventors' Guild, "one company has developed a business *de novo,* in the production of a given article produced by a given process, on which it holds both article and process patents and machine patents for producing the article. Supposing it is satisfying all reasonable demands of the public as to that article; it is giving the public all that the public will buy. Then, under those circumstances, I say it is only right and just that the company—that particular company—which has developed this business *de novo,* building up an entirely new art, should have the right to protect itself by buying other patents for producing that same article—not different articles, but that same article—by different processes and by different machines. * * *

"You are simply giving to the original developer—that is our assumption, that this manufacturer is the original developer of a given business—the moral right to protect himself for the development of that business, and for securing the rewards which he is certainly entitled to by reason of that development. * * *

"The development of a patented process or patent machines, or the introduction of a patented article is a matter that involves enormous expense. You have got to educate the public up to the use of any new article. You have got to educate the manufacturer up to the manufacture of any new article, and you have got to educate the public, in the case of any new process, to use any new process or to use any new machines. The public and the individual manufacturers are conservative; they do not jump at the chance of changing their existing plant or changing their existing methods of manufacture. The

inventor has to force his new ideas upon the public, and upon the individual manufacturers, in a great many cases. It is extremely hard to work up a new business under patents—extremely hard. Take the very case of the company that I cited just a few moments ago. We spent something like $250,000 before we ever got a cent of return in any way, shape, or manner. Now, I say, that under those circumstances, a manufacturer has a moral right to protect himself by buying up other patents that might be competing patents in his business, providing, of course, the inventor is willing to sell those competing patents. It is a mere matter of bargaining between two men." (F. L. O. Wadsworth, XXI, 18-19).

"I think it is entirely proper," said another officer of the Inventors' Guild, himself a former associate of Edison, and a conspicuous independent inventor, "that the incandescent lamp, connected with which there is a chain of patents—there might be a hundred—entirely proper that all of those patents should be combined, if you will, in one ownership; and that those people owning all those patents should use those as a monopoly, and under such terms as they consider best for the development of their business,—even if they are restrictive ones—as it is only a matter of a few years, and the ultimate good to the Nation depends upon the exploitation of the successful patent; and the exploitation of the successful patent involves necessarily the interesting of capital; and the capital will not be interested in a thing unless it has protection that the patent law purports to give." (H. Ward Leonard, IV, 9.)

"All I want," said the chief engineer of an independent concern manufacturing mechanical appliances, "is to have an absolutely complete monopoly of my type of machine, and all alternate related constructions thereof; and I want everybody else to exercise their wits to make a better one, if they can, but never to copy mine." (Spencer Miller, XXIV, 14).

Illustrations from actual experience were cited by many inventors and manufacturers:

"A few years ago," said one, "I undertook, at the invitation of the Navy Department, to solve the problem of transshipping coal in midocean from a collier to a warship. We entered into a contract with the Navy Department, after presenting to them a plan which they regarded as feasible, to produce such a device to be paid for after it had demonstrated its ability to transship coal in a moderate sea at a specified rate in tons per hour. The managers of the Lidgerwood Co. were opposed to this undertaking, on the ground that I would spend a large amount of money for a limited market, and also with the probability that some other inventor would reap the rewards by inventing something a little simpler, a little cheaper or a little better than my device. My answer to that was that I proposed to apply the same method that I had succeeded in before; namely, by studying out every possible new method by which this could be achieved and methods to obtain patents upon them, so that, as the art developed I might be able to turn the inventions which proved the best solution. * * *

"I developed another device for the Navy. I undertook to improve United States colliers, and produced a new type of collier that has been of great advantage to the Navy. The plan I presented was considered for over five years. * * * My machines under test delivered 180 tons of coal per hour from one hatch with two men. We multiplied the output by 4½, and reduced the number of men employed from 35 to 2. I pursued my usual method in this case. I not only patented the method that was presented, but I patented every novel alternate method that I could invent. Are we to be deprived of those alternate devices, although made simply because some commercial rival wants to reap the rewards of years of labor and the expenditure of thousands of dollars? This would be the result under the compulsory-license clause. * * *

"The proposed compulsory-license law would utterly destroy the remaining hope of making a profit. Among 15 patents enumerated, many are alternatives and not used. None are as good as those employed, but any one of them will work. If we should get to a point where the Government were demanding a great many of these machines, and this bill became a law, the commercial pirate would act under this law and demand a license under some of my unused devices, hence it would work a hardship to the manufacturer." (Spencer Miller, XXIV, 5-6).

"A client of mine," said a well-known patent lawyer, "saw at once that a certain invention, if it could be embodied in a machine manufactured by him, would increase the capacity of the machine manufactured by him very greatly, so that every man to whom he sold the machine would get more out of it, the cost of production would be reduced, and facility of operation increased. He bought the patent covering that invention. * * *

"This client of mine took that patent and said to five separate inventors in his employ, 'Here is your problem; organize that invention into my present machine so as to get the most out of it.' Those five men worked months in a scientific laboratory, where they had every possible facility, and at the end of that time they had some 10 or 12 different ways of embodying the invention in his machine. They have not as yet finished, because, as I say, the next problem, is to find out which one of those ways is the best to use. It is highly probable they will find that the best thing to do is to combine the ideas of two or three of the inventors in a new construction which will produce a new invention. Then my client will start in to build his improved machine. As the art develops, in three or four years the problem may change, and it is more than probable that my client will adopt some embodiment of that patent which has not yet been considered or one of those which he will now refuse to adopt. He will do it in a minute, if he can get a small improvement in his machine.

"The result of the above situation will undoubtedly be that this particular client, in order to provide for future developments, will secure a number of patents which may have no immediate value to him, which, looked at from a narrow and shortsighted point of view, will be parallel. Somebody on the outside might, if he had the right, take one of them which my client was not using, and build a machine under it, although inferior to my client's machine. It is highly probable he might humbug the community into buying that machine, greatly to their disadvantage; particularly if he cut his price so far as to appeal to that sort of shortsightedness which is characteristic of those who do not know much about machinery. My client needs all these patents as a reserve of ideas upon which to draw. He had to devise them as an inevitable incident in the development of the best possible machine. He can be trusted to building the best possible machine out of some or all of them, and is very likely to use later some that he does not use now. Why should his exclusive right to any of them be interfered with?" (Frederick P. Fish, XXVI, 8, 9.)

Under the present Stanley Bill, a patent owner who has experimented with all forms of an invention, and has finally manufactured only the single form that has proved to him most satisfactory, may be compelled to license his rivals to use all the other forms of the invention in competition with himself.

"Suppose," said a witness before the House Patent Committee in 1912, "that a man has produced a machine, and then he has produced an improvement on it, and then he sees a chance to produce a second improvement which might be said to be parallel with the first improvement, and not a further descendant in the same line as the first improvement—that is, that the two improvements were equally desirable. He has made his dies and special patterns for manufacturing his machine embodying the first improvement; he has educated the public to buy this ma-

chine of the first form that he put on the market. Here comes along a chance to make another improvement, which would compete with the form that he has on the market.

"If you pass this compulsory license law, and he makes that improvement, his competitor can come in and say, 'I demand a license under second improvement patent, because he is not using it, and as I cannot use the second improvement patent without using the parent patent, I demand a license under the parent patent.' So, the manufacturer, by making this second improvement, has done himself an injury. He has split his monopoly in half and let his competitor in. The result is that he is not going to make any improvements. He is going to try to keep that thing paralyzed and standing, with no knowledge of any other improvement than his first improvement reaching the public, until after his patent has expired or nearly expired, because in that way he will not be open to this demand for a compulsory license." (Edwin J. Prindle, X, 16, 17.)

The president of Thomas A. Edison, Inc., emphasized the same point:

"I make an invention," he wrote, "relating to a plow, obtain a patent on it, and find that substantially the same results can be obtained in two other ways, and I obtain patents on these two forms, but limit my manufacture to the first form which I consider preferable. * * * If I should manufacture and put on the market the second and third types of plow, no one could successfully apply for a compulsory license. In making three types of plow instead of one I would probably not be successful in making any of them so well or so cheaply as I could one form, yet if I felt that unless I did manufacture the second and third forms my competitors might do so, I would surely be justified in making those forms myself, even though it meant an inferior article at a higher price.

"I cannot see that if the patent law were amended in this respect it would promote the progress of science and

the useful arts. On the contrary, it would tend to make inventors distrustful of patents, to curtail their activities, to suppress inventions, and to conceal them as factory secrets." (Frank L. Dyer, X, 38-39.)

How any system of assembled inventions, such as constitutes any one of a number of industries on which civilization now depends, would be affected by "compulsory license" was explained by a well-known patent authority:

"Let me invite your attention, for example," said he, "to the system of fire-alarm telegraphy. * * * Outside of all other instrumentalities employed in such a system, we know that the primary thing is the signal boxes or transmitters that you see located around the streets. * * * I ask you to assume, if the Committee please, the creation and development, of the signal box in practically its present form. Then the inventor turns his attention to the complete central office equipment, the electrical batteries, the main and local circuits, the bus-bars, the switches, etc. It is quite within reason, and quite what may be expected, that he should consume a number of years in the development of such a highly organized and specialized piece of apparatus as that.

"Would he do it, think you, Mr. Chairman, if it were possible for a competitor of his, struggling along the same path, to wait until he had done it and then get a compulsory license under the first patent covering the signal box?" (Samuel Owen Edmonds, XII, 10.)

How the pioneer manufacturer, whose enterprise and capital had created a market for the invention which he had developed, could thus be crowded out of the market he had thus created was graphically described in 1912 to the House Patent Committee:

"A manufacturer owns a number of patents on machines of the same general character," wrote a patent attorney, "One of these patents is the parent or broad and basic patent containing claims which comprehend all of the structure shown by the subsidiary patents. Certain other

patents cover modifications of the original structure, and their claims are limited, these modifications covered by the limited claims being distinctly within the scope of the broad claims of the basic patent.

"The owner decides to manufacture one form of this invention. It may not be quite so good as one of the other forms, but it may be more practical to manufacture, it may be cheaper to manufacture, it may be more attractive to the public. In other words, there may be numerous valid reasons for his not manufacturing the other forms. The patent or patents covering the modifications not manufactured are laid upon the shelf. A large trade on the selected form is built up by advertising. A large amount of money is spent by the owner upon this advertising.

"After the trade has been built up, and after the demand has been created, there comes a competing manufacturer who requires that a license be granted to him for one or all of the modified forms covered by the patents not worked by the owner." * * *

"In the great majority of cases there is no demand on the part of the public for any patented device unless that patented device has been advertised and the sale of it pushed. The demand has to be created, and this compulsory license law, in our opinion, would be of no benefit to the public, but would merely benefit the competing manufacturer who could hold up a rival manufacturer, and threaten him with suit to compel the grant of a license, unless he granted the license initially for a consideration fixed by the would-be licensee himself. It would be within the power of a strong commercial organization to compel such a license even though the weak organization were adequately manufacturing, for the reason that the court proceedings, to say nothing of appeals, cost heavily. It would likewise be within the power of a manufacturer to compel a poor patentee to grant him a license whether or no, and on such terms that the inventor would never desire

a proper compensation." (R. S. & A. B. Lacey, XXVII, 77-78.)

This is not an imaginary case. A well-known manufacturer of printing machinery made this clear:

"Two men," said he, "build similar machines to do the same work. One devises an ingenious little attachment which makes his machine much the more attractive to the buying public and gradually gets for him a large share of the business. The other applies for a compulsory license. Now, what is the measure of the fee he should pay? The device itself costs only a few dollars, but its sole possession is what gives its inventor an advantage in his business. To share it at any price knocks the greatest prop from under the business his ingenuity and energy has built up. To compel him to share his business advantage by compulsory license would kill initiative." (Edgar H. Cottrell, XVI, 16.)

"I have created this line of invention," said the chairman of the legislative committee of the Inventors' Guild, "and it has various ramifications which are alternative. It would be quite unfair to have me, after developing the line that is commercial, and having selected the particular one of the several alternative forms that I think is the best suited—if I do not manufacture several other alternative forms, which manufacture would be quite uncommercial—that then my work should all go for naught. A competitor comes along and at small royalty, and perhaps with very much greater capital and better selling facilities and better organization, takes the business all away from me. It is quite conceivable to my mind in this particular instance which I have in mind, that if I were forced to grant some concern in the electrical business that has $70,000,000 capital and an agent in every town in the country, and they were permitted to manufacture that invention of mine in the shape of an alternative form at a trivial royalty to me, I would be wiped out in a very short time." (H. Ward Leonard, III, 21.)

Instances to the same point might be multiplied.

"Take the Curtis turbine, or a harvesting machine," said one of the witnesses before the House Patent Committee in 1912. "A number of patents are all intermingled in these, so that, as I say, you cannot distinguish one patent from another, except by analysis and thought. In the effort to get the best possible machinery they have mixed up and combined their patents in the large machines.

"There may not be one of the patents in such a machine that in and of itself is of any great consequence or of any great value, and yet a man who has gotten up a different type of machine will say, 'If I could only use that thing—that one little patent—then I could transform this poor machine of mine into a good machine.' And so, by getting a license under that one little patent, he can make a competitor for the company that formerly controlled it. And the hundreds and thousands of dollars invested in building up this first machine are jeopardized, except for the compensation given, which may be negligible, and probably would be, in the case suggested." * * *

"I am talking about the case of alternative inventions. Two inventions being owned by the same manufacturer, who builds one that he thinks is the best. Here is one device that is good; here is another one that is pretty nearly as good. Now, a man comes along and takes the right to use this second device. This is one thing that would happen. You would have patent-owning companies getting up lines of uneconomical machines just for the sake of fixing matters so that a compulsory license could not be demanded from them." (Frederick P. Fish, XXVI, 25.)

A manufacturing inventor added his testimony:

"A manufacturer of such machinery, who is usually the inventor of improvements," he wrote, "builds up a good business because he has given the public the benefit of valuable improvements in his class of machine. In his proper desire to make his machines more attractive to

users, he saw where another improvement might be possible, so went to work on his idea. While experimenting he discovered what seemed to be a very good way to do what he had in mind, and patented it; while working out the details he discovered and patented a better way; when his machine was in operation still another mechanism appeared to work best, and he patented that. In good faith, he finally built and put on the market the form he believed would serve the public best. The whole idea of the improvement was his, whether in its first, second, or third form. Nobody ever before thought of such an improvement, and might never have done so. The sole use of it has given him a good business, because his improvement has made his machine more useful to its buyers.

"Some competitor wants that business, or a goodly share of it. All that competitor has to do, under the proposed new law, is to look over the inventor's patents, pick out some means or method which has not been used * * * and compel a license with which he can rob him of the just reward for his investment of time, brains, and money." (C. B. Cottrell & Sons Co., XVI, 4, 5.)

The conclusion expressed, in 1878, by the Senate Committee on Patents, when it rejected the proposals then advanced to make radical changes in the patent laws, may be recalled:

"The protection which the patent gives a patent owner in the results attained induces him, and is all that will induce him, to expend the time and the money—often several hundred thousand dollars upon a single machine—in perfecting the invention; embodying it in a practically useful machine and introducing it to public use. The committee are therefore convinced that the framers of the Constitution were wise in their judgment when, in intrusting to Congress 'the power to promote science and useful arts,' they gave them only one means for doing it, namely, 'securing for limited times to authors and inventors the

exclusive right to their respective writings and discoveries.'

"No change should be made in the patent law to weaken the inducement which, in its ordinary and normal operation in the common transactions of business, it offers to those who will successfully invent, and to those who, by perseverance and expenditure, will perfect inventions and the machines in which they are embodied, and push their introduction so as to put the public in possession of perfectly working machines or a perfectly finished product." (45th Cong., 2nd Session, Senate Report No. 116, March 5, 1878.)

The proof, as has been shown, is overwhelming that the proposal for "compulsory license" embodied in the present Stanley Bill, would diminish this "inducement * * * to those who will successfully invent and to those who, by perseverance and expenditure, will perfect inventions * * * and push their introduction," and would, more seriously than any one can measure, deter manufacturers from risking the money and effort required to develop and introduce inventions.

V.

HOW WILL "COMPULSORY LICENSE" AFFECT LARGE SCALE INVENTION AND INDUSTRIAL EXPERIMENTATION?

Invention already has developed many of the existing arts, so that to-day they are pretty near to what one of the witnesses before the House Patent Committee in 1912 called "the point of saturation."

"For some years," this witness explained, "there have been very few improvements in many classes of machines, very few radical improvements in looms, very few improvements in sewing machines, like the Singer. * * * An art grows and grows during a tremendous struggle of competition, but finally it gets to a point where pretty nearly everything is finished. There are always opportunities for improvements in details, for refinements, every one of which adds to the efficiency of the machine, when added and correlated to the rest, but there is a time when underlying principles are worked out. There is no longer room for the rough kind of invention in shoe machinery, that was possible 25, 20 or 15 years ago.

"The kind of invention that the community needs to-day is invention in the nature of laboratory research, such as is carried on in great institutions like Harvard College or the Institute of Technology. There must be an unlimited amount of capital, which can be freely spent; there must be highly trained men working often with very little result, working all the time on refined ways of getting improved methods. This is a sort of invention that would not be carried on under any circumstances, except by a big organization working in a big way, with what you might call a big laboratory, ready to spend any amount of money in experiment, ready to hire high-priced men to deal with these problems of scientific improvement." (Frederick P. Fish, XXIX, 140-141.)

In any art that has reached an advanced stage of development, invention can be advanced only by organized effort on a large and expensive scale. Single-handed genius and haphazard invention have had to give way to organized effort by specialized staffs of inventors, all working in the same laboratory, on the same problems, with all the increased zeal and enthusiasm and all the multiplied assistance which such organization alone can give.

An eminent patent authority, whose work has brought him into close touch with the most advanced commercial inventions of the age, described the present state of the inventor's profession:

"You come," he said, "to that great important class of inventors, the men who are developing the useful arts to the greatest degree of all, and who are in the great factories of the country. Development of the useful arts would largely stop, if those men were not at work and were not encouraged; which means if their employers and the capitalists were not encouraged as well as themselves.

"The money that is spent in this kind of invention is very great. I have no doubt it runs up into many millions of dollars a year in this country.

"What does that mean? Mr .Gifford told you about it in the case of the Singer Company. It means having a corps of men who study the problems of the industry, trying to find out exactly what is needed everywhere. Those men have the co-operation of every man in the organization. Every salesman, every engineer, helps them and feeds up to them information. Such organizations have a great corps of inventors, who are dealing with those problems and solving them as completely and as well as possible. There may be several working on the same problem, all working together on the team-work principle, or they may be working separately. Those men are happy; those men are well satisfied. They get splendid pay, they get splendid treatment, they have the pride of achievemnt in their work. I should like to have you meet Prof. Elihu

Thomson, I should like to have you meet Prof. Whitney, I should like to have you meet Dr. Coolidge, and other men of the highest education and standing, who are of the type and who take the greatest possible satisfaction in the great work which they are doing as systematic inventors under the conditions of modern large organizations.

"There is another thing to which I should like to call attention. In many of these great industries we have got pretty near the point where not only is there little chance for great inventions, but where there is even less chance for those that can be made by the ordinary man working under ordinary conditions. So much has been accomplished that the continued work of invention is of a new type. It is not carried on by men like Prof. Bell or the man that gets up a first-rate razor. It is carried on by way of definite research by real laboratory work, where men are solving in a scientific fashion and by team-work the refined problems that need solution.

"That is what is going on in many great factories in the country. The result is a constant enlargement from year to year of the field of industrial activity and constant growth and constant improvement in the arts. These great factory inventive organizations must be fostered, or our industries will not keep up to the times.

"If the patent law is changed so that the result of such work cannot be controlled by the patents on it, those who keep up and develop these great inventive laboratories will lose the incentive to keep them up to a high standard and the progress of the arts will be stayed. Any provision, compulsory license or other, that requires the 'working' of patents that ought not to be worked will greatly discourage the maintenance of such laboratories." (Frederick P. Fish, XXVI, 28-9.)

Manufacturers of specialties in which the range of invention necessarily is narrow, consisting chiefly of improvements in technical details and refinements of principles already worked out in pioneer inventions, are thus obliged

to depend on themselves and their own workmen for inventions that will actually improve upon their own products.

"There must be a large percentage of the manufacturers of this country who are doing their own inventing," said a leading carpet sweeper manufacturer. "I will say on that point that in the 36 years I have been in business never once has an invention on a carpet-sweeper been made by a man outside the carpet-sweeper factory that was worth the snap of your fingers. Never was one invented by a man who has not the knowledge of the art that was worth a picayune. We never bought it and never had any interest in it. The only inventions that count are the inventions that emanate from the men who understand the business." (R. E. Shanahan, V, 9.)

Lines such as these furnish emphatic disproof of the frequent assertion that inventors under the existing patent laws are prevented from manufacturing their own inventions.

"I started making corset inventions about twenty years ago," said one of the leading corset manufacturers of the country, "when I was working for other people to whom I sold on a royalty basis. When we went into business ourselves,—we were three brothers,—I manufactured the newer patents, which I made myself, and we have now about 100 patents, probably more. We have always five to ten patents pending in the Patent Office, and I am the designer and patentee of nearly all of them. One of my brothers is the patentee of most of the labor-saving machinery for those patents. We control exclusively our own business in regard to manufacturing. * * *

"Our money is invested in that business to the amount—inclusive of buildings, I dare say—of at least two million and a half dollars, not including values of our patents and trade-marks. * * * We started with comparatively nothing—we had little money. * * * We drew when we went into business $6 a week for living. * * * We commenced with some money I had made working for others, together

with some my brothers had made in the same way, and we worked along that line for eight or ten years without making any material financial headway, because the ideas which we advocated were new. * * * We did last year three and a half millions of dollars in this country." (Daniel Kops, XIII, 3, 4, 21.)

"There are many businesses in the United States that have built on the inventions of their presidents," said a leading patent lawyer. "You take the Ferracute Machine Co., of Bridgeton, N. J., the company which makes the Government presses for the mints for coining metals, and that company is built on inventions of the president of the company, Mr. Oberlin Smith. The Potter & Johnston Company of Pawtucket, R. I., which makes metal-shaping machines, that is also built on the inventions of Messrs. Potter and Johnston. They are both prosperous. * * * Many inventors are employed by companies that put their inventions into their own businesses, and they get bonuses for the inventions, or they get permanently larger salaries for the inventions which they make, and in that way the company is able to keep abreast of competition, and the inventor himself is assured an adequate return. * * * The Calculagraph Co., of New York, which makes the machine for the telephone people, to measure the length of time that you talk when you are charged according to time; the business of that company is based on the invention of the president, Henry Abbott. He is president of the company and built up the business. He not only made the invention, but introduced it and built up the system of manufacturing it. There are very many such companies in the United States where the inventor directly gets the benefit of his invention." (Edwin J. Prindle, X, 19-20.)

Another patent lawyer, later a Commissioner of Patents, gave the same testimony:

"With the exception, I think, of one plant, which has been unfortunate, every man with whom I have been associated to any considerable extent in the last 20 years has

done well with his invention; he has improved his position; he has even made money by the sale of his product, or he has gotten associations that have helped him, and he has been enabled to develop his patent lines and has gotten ahead faster and better than he would without them." (Thomas Ewing, Jr., X, 26.)

Invention can be successfully carried on to-day in any of the advanced arts, only by concentrating inventive effort directly upon the particular problems presented by the next forward step in the art.

Advised by the best informed experts as to what are the immediately pressing subjects that require inventive effort, the modern inventor, with the aid of an expensively appointed laboratory and a large corps of assistants, sets himself to the task of working out just the invention that will achieve precisely the desired advance in the art.

"Wherever a modern business concern is engaged in promoting the progress of the useful arts by developing inventions," explained a witness, "it is doing it in a complete and scientific fashion. That is, it first finds out the problems to be solved. It has people who are watching the problems everywhere, who are constantly studying to learn what the public needs or demands. * * * It is not merely a question of accomplishing some result in some way; it must be done in a way that is reasonably cheap, reasonably satisfactory, that will work and that will be a real advantage to the public. In order to work out such problems, the concern may have many men, many inventors, at work all the time trying to solve the same problem. Others on the outside may be working on the same problem. If some one on the outside gets up an invention that is of value or which it is thought may have some value in the solution of any of these problems, the concern we are considering may buy that invention. Thus by the work of its own inventors or of outside inventors, a concern may find itself in possession of several inventions, each of which is a solution of the same problem. It is ob-

viously for the public interest that it should know as many ways as possible of getting at the desired result. Otherwise it may not find the best way.

"Then it is just at the beginning of the real difficulties of its commercial effort. It must now pick out the best method of the many that have been devised and manufacture that, not an inferior invention. That is of the utmost consequence, because one way is the best, and it must try to select that way. Its reputation and success are at stake. It cannot put out an inferior product." (Frederick P. Fish, XXVI, 7.)

Some conception of how prolonged and expensive this research and experimentation may be before a solution of the problem is reached that will be "reasonably cheap, reasonably satisfactory, that will work, and that will be a real advantage to the public," can be gathered from the number of patents that have to be used, or at least experimented with, before any important machine of a modern type can be produced.

"I have in mind a machine that I was looking at the other day," remarked an officer of the Patent Law Association of Washington; "It says on the back of it, 'This machine is protected by 67 patents.' That concern, to my knowledge, owns some thousands of patents. Sixty-seven of them went into that particular machine. Now, lots of those patents are for little trivial things that save a few cents here and a few cents there. They are things invented by a corps of mechanics employed constantly at that work and doing nothing else." (William W. Dodge, XXVII, 43).

"The committee is entirely in error," said another patent authority, "if it undertakes to divide inventions into individual units—this invention and the next invention, which are in competition. Almost every machine or method that is of any consequence to-day in the big manufacturing enterprises, which are the most important phases of our industrial development, embodies a large number of pat-

ents. There may be 10 or 15, and they may come from anywhere—one may be bought in Germany, one invented by a backwoodsman in Maine, 6 or 8 invented in the factory where the device is built, and others in some other factory.

"One of the tremendous problems of those who are doing the business of the country to-day is to develop the best machine or methods without infringing other people's patents, because if they cannot get the best they are not living up to their obligations to the community as public servants, and they must strive to get the best or they fail in their duty. They must not let others have patents that will prevent their building the best machines possible if they can lawfully prevent it. Therefore, they must invent all that they can in their own factories, and buy outside, or they cannot build the best possible machines. That means, in many instances, the accumulation of many patents relating to the same subject-matter, and it means the use of one or the other, but not of all, this year or next, as the case may be, in order to build the best possible contrivance. * * *

"It is the constant and repeated experience of such a company that having started in with the method which it thinks is the best to reach the desired result, within a year or two years or three years it finds that the art and the requirements of the business have developed so that the best method turns out to involve one of the other methods, or a combination of one, two or three of the other methods which at first were discarded.

"The result is that such a concern does not cease its investigations because it has once chosen a particular method. It continues to accumulate as many items of information, as many ways of solving the problem, as it possibly can, and it draws upon those all the time, correlating and changing its own views and endeavoring to develop the best method, as conditions and requirements change, by constantly watching the requirements of the

market and adopting something here, something there, and something elsewhere, and bringing all these suggestions and improvements together in order to get the best possible result. It knows that it must have and must acquire just as many inventions bearing on the subject-matter as it can, even though they may not seem to have any immediate usefulness, or it will find itself unable to build the best machine that it knows how to build because it does not own some necessary patent. It may be that this patent a short time before seemed to have no value, and that its usefulness became apparent only in connection with some later patent. Furthermore, in 9 cases out of 10, the best machine requires the use not alone of one particular patent but of at least several other patents owned by the concern we have been considering which has been at work on this problem. It is to avoid, so far as possible, such situations as this which constantly arise, that a concern employed in developing a particular kind of machine endeavors to acquire as many patents as possible bearing on the art." (Frederick P. Fish, XXVI, 7-9).

Large manufacturing concerns to-day maintain expensive laboratories to an extent not dreamed of in former years. Referring to the Singer Sewing Machine Company, the patent counsel for that company said:

"That company has in its factories what it calls experimenting rooms. It has two in the Elizabethport factory; it has one in the factory at Bridgeport, Conn.; it has at least one in the factory in Scotland.

"A man who is in any one of those experimenting rooms is paid a big salary, the largest of anybody in the factory, because of his inventive ability. His inventive ability very largely determines his salary, because if he is a good inventor his salary is larger. That man, when he invents, has the benefit of what? The system of the company requires that all of their agents—and they have thousands of them all over the country—shall make frequent reports from all parts of the country as to needs of the people in their

vicinity. If a man comes in and says, 'I want a machine that will do a certain work,' it is the agent's business to report that to the headquarters of the company, so that when an inventor starts to invent in any one of those rooms his efforts are directed in the right direction, so that they cannot be misdirected. He knows beforehand that he is going to supply a need. An inventor on the outside, having no such facilities himself, just as like as not if he undertakes to invent will invent something that is not particularly required, and when he comes to offer it to a company like the Singer Co., they will say: 'Why, your thing is first rate, but we have no particular sale for it; there is no demand for it.' It may be ahead of its time, or something of that kind. These men in the experimental rooms of the Singer Company have also this advantage: There is a patent department in the Singer factory; there are three men employed at the present time in it who have nothing to do but look after and keep themselves posted as to what has been done. This man in the experimenting room, as soon as he conceives of a way of doing something, consults the patent department, and, perhaps, they will find that his way has been tried before, as indicated by prior patents, and has turned out to be a failure. So they say, 'You better not go ahead on those lines, because that will not result in success.' Again, he has advantage of consultation with the officers, the men who are old men in the business. You take Mr. Diehl, of the Singer Co. He is probably the most experienced man in the world as to what they have tried to invent which were failures; and if this man in the experimenting room says, 'I am going to do this in that way,' Mr. Diehl can tell him, perhaps, in a moment, 'You cannot get long successfully that way, because we have tried that years ago and it turned out to be a failure.' This man, I say, is inventing under an environment that is bound to be rightly directed; it is bound to avoid all the pitfalls of failure that have wrecked previous inventions, and it is above all things for the advancement

of science and the useful arts that that kind of invention should proceed, and that kind of invention should be fostered.

"The General Electric Company are not clients of ours, although we have done work for them, and I suppose we are more opposed to them than we are with them, but I should not want to be so free in condemning the General Electric Co. The General Electric Co. has done more for the advancement of the science of electricity and the arts in that line than any other company that ever existed in the world, I think. They have done it by offering the facilities that they have for the making and developing of inventions in that line. They have an enormous amount of capital invested in facilities for that purpose." (Livingston Gifford, XIV, 7-8, 15.)

Large corporations, it should be emphasized, are not the only concerns that maintain large inventive staffs and costly laboratories.

Independent inventors, entirely unconnected with large corporations, men like Thomas A. Edison, H. Ward Leonard, Dr. L. H. Baekeland, F. L. O. Wadsworth, Benjamin M. Des Jardins and Cortlandt F. Carrier, all of whom testified in 1912, before the House Patent Committee in person or by letter (III, 17-27; IV, 3-28; IV, 28-45; XXI, 3-10; XXI, 10-31; XXIII, 26-37; XXIII, 32-34), carry on their work with their own corps of assistants in their own expensively equipped laboratories. The plant and equipment maintained by these independent inventors and by other members of the Inventors' Guild, an association of independent inventors, of which Thomas A. Edison, Peter Cooper Hewitt, Michael I. Pupin and H. Ward Leonard were members, have rivalled the plant and equipment maintained by the largest corporations.

The proposal for "compulsory license" embodied in the present Stanley Bill would virtually legislate all these plants and equipments out of existence.

"There would be no incentive for them if the patent statute were canceled," explained a witness to the House Patent Committee in 1912. "Their competitor or next-door neighbor, the next day after they had spent $100,000 in bringing out some improvement, could start in and manufacture without the handicap of that $100,000; they simply could not afford to do it. So, you could modify the term of a patent and you could modify the reward to the inventor, but the question is, 'What would be the effect to the public? Would the public gain or lose by it?'" (Edwin J. Prindle, X, 11.)

VI.

HOW FREQUENT IS THE "SUPPRESSION" OF PATENTS?

At the close of the testimony which the House Patent Committee took in 1912 on this point, one of the witnesses summarized the evidence as follows:

"I am sure that there is no substantial amount of suppression of patents that in the public interest should be worked; but I respectfully submit that the committee should have before it some facts to the contrary before they assume it is not a fact; and I submit that they have no facts to the contrary whatever. It seems to me that there must be good evidence produced of injury caused by the present system to justify a change in the law under which our arts have developed, our industries have developed, to the extent they have, and until specific cases are stated which we can examine and study and find have injured the public, the committee cannot make the assumption that there is any harm or any wrong under the present system.

"On this particular point of the suppression of patents, the alleged suppression of patents, there is not a particle of evidence before the committee; there is not anything in print anywhere that I have seen, which indicates that that is a matter of the slightest consequence. Under those circumstances I respectfully submit that the committee should not attack the fundamental principles of the patent law for no purpose, and that such an attack is for no purpose. I respectfully submit, further, that the mere guess of the committee that such things might happen is not enough to justify violent action based on that mere guess. This general subject has been before several other committees and not one case has been brought out so that it could be analyzed, so that it could be determined whether there was a real suppression of the patent. I should ex

pect to find some that could not be explained among the hundreds of thousands of patents now in force, but I respectfully submit that there are mighty few, and I think the number is absolutely negligible." (Frederick P. Fish, XXVI, 10-12.)

Mr. Thomas A. Edison summed up the situation succinctly:

"I have heard and read numerous statements that many corporations buy valuable inventions to suppress them, but no one cites specific cases. I myself do not know of a single case. There may be cases where a firm or a corporation has bought up an invention, introduced it, and afterwards bought up an improvement and ceased using the first patent—suppressed it, in fact. Why should that not be done? It is for the benefit of the public that it should get the latest improvement. I cannot see why the public should be asked to change the patent law to enable a competitor to get hold of the disused patent so he could have a basis on which to enter into competition with the pioneer of the invention who has introduced an improved machine.

"Before any changes in the law are made, let the objectors cite instances where injustice has been worked on the public by the alleged suppression of patents for other reasons than those which were due to improvements." (Thomas A. Edison, XXIII, 34.)

The distinction by Mr. Edison between willful suppression of inventions, and the rejection of inventions, after careful experimentation and trial, in favor of the use of better and more useful inventions that accomplish the purpose more satisfactorily, must be kept firmly in mind in order to judge the situation fairly.

"Not all inventions have been used," declared a patent attorney. "Some were not useful. Others could not be used without interference with some business principles that operated to the public advantage; but taking the matter up at large, inventions have been used to the necessary

extent during the life of the patents to give us in this country the great and early development in the industries of which we are so proud. * * *

"I have not the slightest doubt you will find many inventors who will say that their inventions have been suppressed; I think it is very probable you will find cases in which they have not been used and have therefore been suppressed in that sense; but is there the slightest evidence that the invention was of the slightest value, that it was worth developing, that it could be developed to the advantage of anybody? May it not be that, in most such cases, the invention could not have been worked except to the detriment of the public, because it was inferior to other things that were commercially practiced? The laws of business and of common sense stand in the way of the working of worthless or inferior inventions and it is in the public interest that this should be so; but is there here any showing that an invention that ought to have been worked has been suppressed?

"I am not foolish enough to advance the proposition that if you ransack the Patent Office, among the million or more patents that have been taken out in this country, you will not find a patent here or there which has been 'pigeon-holed'—to use another phrase that is sometimes employed;—which competent men would say might have been used to the public advantage. But, as to this proposition, I have no hesitation whatever in saying that when Mr. Wadsworth and others like him make a statement of that sort, a dispassionate tribunal which investigated the matter would in almost every instance find that the invention was not worth developing; that it could not have been practiced without sacrifice in economy and efficiency that would be contrary to the public interest; and that that was the reason why it was suppressed. In the vast majority of cases they would find that it is not worth developing, because it did not have real merit." (Frederick P. Fish, XXVI, 6-7.)

How necessary it is to reject inventions, which careful experimentation and trial have proved inferior, and how essential it is to use only those inventions which experience proves will most satisfactorily accomplish their purposes is abundantly evident.

"Wherever a modern business concern is engaged in promoting the progress of the useful arts by developing inventions," said a witness whose experience entitles him to speak with the highest authority, "it is doing it in a complete and scientific fashion. That is, it first finds out the problems to be solved. It has people who are watching the problems everywhere, who are constantly studying to learn what the public needs or demands. * * * It is not merely a question of accomplishing some result in some way; it must be done in a way that is reasonably cheap, reasonably satisfactory, that will work and that will be a real advantage to the public. In order to work out such problems the concern may have many men, many inventors, at work all the time trying to solve the same problem. Others on the outside may be working on the same problem, and if some one on the outside gets up an invention that is of value or which it is thought may have some value in the solution of any of these problems, the concern we are considering may buy that invention. Thus by the work of its own inventors or of outside inventors a concern may find itself in possession of several inventions, each of which is a solution of the same problem. It is obviously for the public interest that it should know as many ways as possible of getting at the desired result. Otherwise it may not find the best way.

"Then it is just at the beginning of the real difficulties of its commercial effort. It must now pick out the best method of the many that have been devised and manufacture that, not an inferior invention. That is of the utmost consequence, because one way is the best and it must try to select that way. Its reputation and success are at stake. It cannot put out an inferior product. * * * It

is the constant and repeated experience of such a company, that having started in with the method which it thinks is the first to reach the desired result, within a year or two years or three years it finds that the art and the requirements of the business have developed so that the best method turns out to involve one of the other methods or a combination of one, two, or three of the other methods which at first were discarded. The result is that such a concern does not cease its investigations because it has once chosen a particular method. It continues to accumulate as many items of information, as many ways of solving the problem, as it possibly can, and it draws upon those all the time, correlating and changing its own views and endeavoring to develop the best method, as conditions and requirements change by constantly watching the requirements of the market and adopting something here, something there, and something elsewhere, and bringing all these suggestions and improvements together in order to get the best possible result. It knows that it must have and must acquire just as many inventions bearing on the subject matter as it can, even though they may not seem to have any immediate usefulness, or it will find itself unable to build the best machine that it knows how to build because it does not own some necessary patent. It may be that this patent a short time before seemed to have no value, and that its usefulness became apparent only in connection with some later patent. Furthermore, in 9 cases out of 10 the best machine requires the use not alone of any particular patent, but of at least several other patents owned by the concern we have been considering which has been at work on this problem. It is to avoid, so far as possible, such situations as this which constantly arise, that a concern employed in developing a particular kind of machine endeavors to acquire as many patents as possible bearing on the art. * * *

"I do not think that there is any limit to the extent to which a concern which is doing its work with the strenu

ous good faith which, I respectfully submit, characterizes modern business in the matter of quality of work produced—for if there is any one thing of which I am sure, it is that the manufacturers of this country are trying to give to the public the best possible machinery—I do not think there is any limit to the extent to which such a concern which is endeavoring to meet modern conditions by supplying the best possible apparatus should be permitted to purchase patents. * * *

"The one patent owner who buys out what patents come along is continuing his own business and is doing what is necessary, obviously necessary, for the development of his own business—that is, he wants a store of ideas from which he can draw all the time, and that is why he buys the patents. He does not buy them to suppress them." (Frederick P. Fish, XXVI, 7, 11.)

The modern manufacturer, therefore, must collect patents from everywhere, carefully compare them, thoroughly try them out, promptly reject the unpromising, expensively develop the more promising, and finally, out of all his expenditure and trouble and his entire collection of patents, produce a mechanically perfect and commercially practicable result.

This task is frequently tremendous.

"The committee is entirely in error," continued the witness last quoted, "if it undertakes to divide inventions into individual units—this invention and the next invention, which are in competition. Almost every machine or method, that is of any consequence today in the big manufacturing enterprises, which are the most important phases of our industrial development, embodies a large number of patents. There may be 10 or 15, and they may come from anywhere—one may be bought in Germany, one invented by a backwoodsman in Maine, 6 or 8 invented in the factory where the device is built, and others in some other factory. One of the tremendous problems of those who are doing the business of the country today is to de-

velop the best machines or methods, without infringing other people's patents; because if they cannot get the best, they are not living up to their obligations to the community as public servants, and they must strive to get the best or they fail in their duty. They must not let others have patents that will prevent their building the best machines possible, if they can lawfully prevent it. Therefore, they must invent all that they can in their own factories, and buy outside, or they cannot build the best possible machines. That means, in many instances, the accumulation of many patents relating to the same subject matter, and it means the use of one or the other, but not of all, this year or next, as the case may be, in order to build the best possible contrivances. * * *

"A client of mine saw once that a certain invention, if it could be embodied in a machine manufactured by him, would increase the capacity of the machine very greatly, so that every man to whom he sold the machine would get more out of it. The cost of production would be reduced, and facility of operation increased. He bought the patent covering that invention. The patent was of small value in the form in which it came to him. That is, if anybody were to build a machine under that patent alone, it would not be a very good machine. That is the case with many patents, particularly if they are patents taken out at the beginning of some marked improvement.

"This client of mine took that patent and said to five separate inventors in his employ, 'Here is your problem; organize that invention into my present machine so as to get the most out of it.' Those five men worked months in a scientific laboratory, where they had every possible facility, and at the end of that time they had some 10 or 12 different ways of embodying the invention in his machine. They have not as yet finished, because, as I say, the next problem is to find out which one of those ways is the best to use. It is highly probable they will find that the best thing to do is to combine the ideas of two or three of the

inventors in a new construction, which will produce a new invention. Then my client will start in to build his improved machine. As the art develops, in three or four years the problem may change, and it is more than probable that my client will adopt some embodiment of that patent which has not yet been considered, or one of those which he will now refuse to adopt. He will do it in a minute, if he can get a small improvement in his machine.

"The result of the above situation will undoubtedly be that this particular client, in order to provide for future developments, will secure a number of patents which may have no immediate value to him, which, looked at from a narrow and shortsighted point of view, will be parallel. Somebody on the outside might, if he had the right, take one of them, which my client was not using, and build a machine under it, although inferior to my client's machine; and it is highly probable he might humbug the community into buying that machine greatly to their disadvantage; particularly if he cut his price so far as to appeal to that sort of shortsightedness which is characteristic of those who do not know much about machinery. My client needs all these patents as a reserve of ideas upon which to draw. He had to devise them as an inevitable incident in the development of the best possible machine. He can be trusted to build the best possible machine out of some or all of them, and is very likely to use later some that he does not use now. Why should his exclusive right to any of them be interfered with?" (Frederick P. Fish, XXVI, 8, 9.)

The case just described is universal in all the highly developed industries:

"The Edison lamp patent, for example," to quote a former president of the American Telephone and Telegraph Company, "did not show a structure which, as described, was of commercial value by itself, but it soon became of enormous value to the public because other inventions were added to it. The first Bell telephone could

hardly talk. What difference did it make? The idea was there, and inside of 18 months or two years, other improvements were added, and we had first-class telephones." (Frederick P. Fish, XXVI, 8-9.)

Other instances have already been cited above.

Viewed with all the facts in mind, which the witnesses above quoted developed before the House Patent Committee in 1912, it is plain that genuine instances of "suppression" of patents are practically unknown.

"I do not know of any, of my own knowledge or information, which have been locked up that amounted to anything," said the patent counsel of the Singer Sewing Machine Company. "If you said it would prevent some being locked, irrespective of whether good for anything or not, I suppose it would open up some which had not been promoted or worked, but I do not believe that they would be any advantage to the public, and I do not believe any are locked up that amount to anything." (Livingston Gifford, XIV, 9-10.)

"I can say that any number of patents are suppressed, but does that prove the case?" remarked another patent lawyer. "I respectfully submit that in a matter so important as this the case against the present law should be proved. People may come before this committee and say: 'Here is a certain patent that has been suppressed.' They may point out five or one hundred or a thousand patents which may have been suppressed. Even if they did, this number would be trivial compared with the total business in this country which is based on patents. But further than that, I am just as sure as I stand here, that an expert, acquainted with the arts to which those patents which it was claimed were suppressed related, would say as to at least nine-tenths of them: 'Why, of course, that patent was not used; not so good a machine can be made under it as under the other patent now in use, and it has not any particular value in and of itself. It would have been an economic waste to have used it. Its only value, if it has any, is that in it are some ideas which can

be taken and combined with other ideas to make a machine that is unlike either.'" (Frederick P. Fish, XXVI, 10, 11.)

"The idea that patents in large proportions are 'locked up' in the objectionable way in which this term is used is largely based upon misinformation," declared the president of the Patent Law Association of Washington. "It is true that thousands of patents are in force which are not in use; it is probably equally true that a large per cent. of the owners of those patents would be very glad to have them in use. It will be found, in many cases, that the invention forming the subject matter of the patent not in use is either impracticable or not as good as something else for the same purpose on the market; that the owner of the patent lacks the business ability or the necessary capital to put his invention into use; or has such an exaggerated opinion of its value that he will not make reasonable terms with others having the ability and capital to profitably undertake the exploitation of the invention. It is true that, in many arts, the machines of today are quite different from the machines of a year ago, and the machines of 10 years ago, manufactured by the same concerns for the same line of work, are scarcely recognizable, as bearing any relation whatever to the modern up-to-date product. It may be that the development of the machine from its original form to its latest form has been brought about by a series of inventions, the result of experiment and experience, and also by an endeavor to enlarge its field of usefulness or to adapt the machine for new lines of work which have grown up with the development of the arts. These results may have been achieved by a multitude of inventions, each the subject of a separate patent, so that the perfected machine, instead of being the subject of one patent, represents the embodiment of the inventions in dozens or hundreds of patents. The latest and best form of a machine may be illustrated in the latest patent containing claims for some of the latest im-

provements thereon, but it would not follow that the dozens or, perhaps, hundreds of other patents which have been secured in the course of the development of the machine are 'locked up,' for the single machine would itself represent the embodiment, the use, and the practice of all of the inventions, of all of the patents, so far as available at this time." (E. W. Bradford, XXVII, 50-1.)

"In my experience of over 25 years," said another high patent authority, "I have not heard of any patent being 'buried.' While I have, in common with others, heard rumors of such, I have never ascertained that, as a matter of fact, patents are buried, certainly not to an extent as to materially injure or affect the general public welfare." (L. S. Bacon, XXVII, 106.)

"I can say, from my own experience," stated a representative of the Patent Law Association of Washington, "that I know of no instance of any such suppression in the sense in which that term has been used by and before this committee. It is true that the manufacturing concerns buy up a very large number of patents, but it is equally true that they draw from those patents for the improvement of their concrete structure." (William W. Dodge, XXVII, 36.)

"I do not think very many valuable patents are pigeonholed," said the chief engineer of a well-known independ ent manufacturing concern. "Anything that can be sold at a profit is sold at a profit." (Spencer Miller, XXIV, 11.)

The reason why "suppression" of patents practically never occurs is obvious; the self-interest of the patent owner always lies in the direction of using any invention that really accomplishes its purpose more satisfactorily than the existing art.

"The agitation for compulsory license," wrote a prominent manufacturer, "we believe to be largely due to an idea that the public is losing the benefit of thousands of patents; because they have been purchased by a few trusts for the purpose of pigeon-holing them and

avoiding the expense of making the improvements their use would compel. The fact is that competition takes care of such a situation when it exists, except in the very rare cases where there is no competition. For every such case there are many thousands where competition is very keen and the public profits exceedingly." (C. B. Cottrell & Sons Co., XVI, 4.)

"I believe," said the president of an independent electrical concern, "that what one writer on economics calls scientific selfishness as distinguished from unscientific greed will automatically work out the matter to the best public interest, without the necessity for a specific law on the subject. If a man owns a patent on an invention greatly needed by the public, he is, on the average, pretty certain to begin its manufacture as soon as he reasonably can. I believe that the introduction of some more or less revolutionary inventions should, in any case, be gradual, because of the destruction of values which might occur if the improvement were introduced suddenly and broadly." (Arthur C. Eastwood, XV, 8.)

"There are very few manufacturing industries today who have not more or less competition," explained a leading patent authority, "and this competition is, as will undoubtedly be admitted, and which is certainly well recognized, a competition built up by and through inventions and patents. Inasmuch as a patented invention carries with it the monopoly prescribed by the statutes, manifestly the business end of the proposition would be and is, or has been, to introduce the patented invention or improvement so as to more effectually meet the general competition. It is this that stimulates invention, stimulates the manufacturer to acquire inventions, and stimulates capital to undertake the promotion of inventions." (L. S. Bacon, XXVII, 106.)

Patent lawyers added the same testimony.

"The whole tendency of the times," said a distinguished Boston patent lawyer, "the manufacturing spirit of to-

day, and competition, which is most strenous even in industries which rely upon and work under patents, forces the use of the best instead of any inferior devices. This last case is, in my judgment, a very uncommon case; that is, where there is a parallel patent which has been pigeonholed, which is exactly parallel in all respects to a patent in use. I am assuming that there are such cases, and I respectfully submit that there is nothing in public policy that makes it wrong or offensive that that should be done." (Frederick P. Fish, XXVI, 10.)

"The manufacturer," said a well-known New York patent lawyer, "must make the most up-to-date article that he can, for fear that his competitor will discover something that is equally good or better that does not come under his patent. Thus I do not think it is true, to a very great extent, that manufacturers suppress inventions that are really improvements." (Edwin J. Prindle, X, 17.)

In its report in 1912, the House Patent Committee went outside of the testimony given before it for evidence of the "suppression" of patents by which to support its assertion that "patents in the United States are brought up in large numbers for the purpose of suppressing competition." This matter, the committee declared, "has been the subject of comment and complaint in the public press for years." But the committee did not specify a single instance that "has been the subject of comment and complaint in the public press."

The value of such "comment and complaint" was discussed by several witnesses:

"There are many inventors in this country," said one witness, "who will say that their inventions have been suppressed, just as there are many lawyers and doctors who will say that they have never been appreciated at their true worth. That will account for the charge of suppression, in my judgment, in a very substantial number of cases—the fact that the man who makes the charge is biased; for the man who makes the charge is very likely

to be biased by his own pride, his own feeling that he has not had his due, and, more than that, by his ignorance." (Frederick P. Fish, XXVI, 12.)

"This is the source," said another witness, "of this cry of suppression. Every inventor whose invention is not put upon the market, who is not able to command the capital to exploit that invention, assumes immediately that the great trusts and corporations are conspiring and combining to prevent that invention going into use. There is absolutely no foundation in fact for any such theory." (William W. Dodge, XXVII, 36.)

The more advanced the art becomes, the more may be expected this unfounded "comment and complaint" that patents are being "suppressed." The reason is plain:

"It is so common in all these arts," one of the witnesses explained, "for a man who knows just the surface of things to think that certain thing would be useful, when the man who knows the real inside of the art knows that it will not be useful, because he, and he alone, knows the change of mechanism and the reactions throughout the organization that would be involved in introducing a particular idea; and he would reject what somebody else might think was useful." (Frederick P. Fish, XXVI, 13.)

The telephone business is an example of this; and out of his experience in that business, the same witness, who was a former president of the American Telephone and Telegraph Company, testified:

"I had something to do with the Telephone Company a number of years ago. There were a number of people who resented the fact that there was not individual signaling on a four-party line, which could be done perfectly well. We had several sets of patents on it. What they did not know was this: that no mechanism for this purpose could be devised which would keep in order; that where it was placed on a four-party line it added enormously to the expense of maintenance, it added to the complication of the mechanism, and it led to a great increase

in breakdowns throughout the system, and bad service, so that those on the inside felt it would be a most fatal mistake, for the sake of a slight advantage, to introduce an enormous number of disadvantages. That illustrates what I mean. Superficially, the man on the outside might say that it was a beautiful thing. They have other ways now of working out the scheme, which help out a good deal, but the old inventions never would have worked." (Frederick P. Fish, XXVI, 13.)

"Let us take an extreme case," said the same witness, "of which I do not think there are many instances. A man has two patents, each of which is complete in itself and each of which is operative. He knows, because he studies the art that one is better than the other. That is substantially the Paper Bag Case, where the plaintiff was making first class machines under one patent, and held another patent which he was not using, and which, we will assume, was radically independent of the one under which he worked. His machines were making exactly the same paper bags that could have been made by machines built under the other patent. He spent, very likely, hundreds of thousands of dollars in the development of the machine he was using. He gives the public the article that they want made on machines built under the patent which he uses. I say, that under those circumstances, there is absolutely no reason, based upon public policy, why that man should not hold this second patent which he is not using for the sake of protecting him in the use of his first idea. That would give him the monopoly of the manufacture of one particular kind of paper bags only, and perhaps not of that. There are many kinds of paper bags made in competition with each other; the patentees and manufacturers of today are trying to find the best machines for making them. It may be that he invented the second patent in his own factory. If he purchased it, his object very likely was that he might have this other way of making these same bags, so that if this other way turned out

to be a better way he might use it. If, in the course of time, this second invention appears to be the better way, he will use it." (Frederick P. Fish, XXVI, 9, 10.)

Taking leave of the alleged instances of "suppression of patents" relied upon by the House Patent Committee in its Report in 1912, it may not be amiss to quote the testimony of the same witness, who is a leader of the patent bar, and has appeared in most of the important patent cases before the Supreme Court of the United States in recent years:

"I personally can not think of an instance in my career of a meritorious patent being suppressed. I have known of the charge but have in every case known that it was unfounded." (Frederick P. Fish, XXVI, 13.)

The only "suppression of patents" that there actually is, and the only remedy therefor that really exists, were described by another witness before the House Patent Committee in 1912:

"There is suppression because of the poverty of the inventor, making the application for patent economically impossible. The proposed law would in no way improve the conditions or prospects of inventors in this class, and the great majority of inventors are very close to poverty or actually in it. This cause of invention suppression, or rather withholding, can be modified by rendering patent property more secure, and rendering the enforcement of patent rights more definite and less costly * * * It is the policy of many manufacturers to absolutely refuse to buy patents, owing to the prevailing belief that patents do not give any real protection, and owing to the runious costs of patent litigation." (Joseph J. O'Brien, XXVII, 99, 100.)

Far from proposing a remedy for this involuntary "suppression of patents," the Stanley Bill would actually tend to increase it.

VII.

HOW WILL "COMPULSORY LICENSE" AFFECT THE NUMBER OF INVENTIONS PATENTED AND MADE PUBLIC?

Whenever a patent is issued under the existing patent system, the public obtains two new valuable rights, either one of which is far more valuable than the patent in the hands of the patent owner.

These rights are: first, absolute freedom at the expiration of the seventeen-year patent period to use the patented invention without paying anybody anything for such use; and second, immediate knowledge and complete information concerning the entire discovery and invention for which the patent is issued.

"The patenting of an invention under the law," said Thomas A. Edison, addressing the House Patent Committee in 1912, "is the making of a contract by which the inventor gives to the Nation a clearly stated public disclosure of his secret process or manufacture, and the consideration given by the Nation to the inventor is the exclusive right to the invention for a specified limited time within which to secure the greatest benefits from his invention." (Thomas A. Edison, XXIII, 32.)

Indeed, the originality and the glory of the American patent system consists in its recognition of the value of this disclosure to the public.

"When the Constitutional Convention met," said the president of the Patent Law Association of Washington, "its members had before them and under consideration the English idea, and a suggestion of a different idea in the practice of the colonies. The English idea had been to encourage monopolies, so that the introduction of a new trade or a new art was the essence of the law. The constitutional idea, however, was that of encouraging domestic invention; and, in the first patent law of 1790 and in all

the subsequent amendments to that law, the basic idea has been to encourage original invention.

"The introduction of those inventions into use was wisely left to the incentives of business enterprise. The invention was to encourage inventive thought, to secure a disclosure of the inventive thought as promptly as possible. It was not deemed wise to require that the inventive thought, which might be years in advance of the day, should be withheld until the inventor had been able to make provision for actually introducing the manufacture. The sooner the inventive thought was disclosed, the sooner it became public property. The sooner the inventive thought was disclosed, the sooner it would be an incentive to others to improve upon that inventive thought. It was intended to offer the strongest incentive for a prompt application and disclosure. Inventors were to be made to feel the necessity of promptly completing their inventions; and this they could do either by actually reducing to practice the invention or by filing an application for a patent. They need not provide in advance for the manufacture, the trading.

"When it is conceived that the essential spirit of the Constitution and the patent law is to benefit the public by securing a disclosure, it is clear that the disclosure should be prompt and complete.

"When the inventor has disclosed his invention—that is to say, when the patent is granted and the disclosure is given to the public—he has done all that he is required to do. He has completed his bargain. This it is which has distinguished the laws of the United States for over 120 years from the majority of other patent laws, and it is this spirit which has been recognized by all the world as the ideal spirit of the patent law, toward which other laws are tending." (Walter F. Rogers, XXVII, 6-7.)

The disclosure of the invention, which the inventor makes in consideration of receiving a patent, is the funda-

mental and all-important feature of the American patent system.

The Official Gazette of the United States Patent Office prints every week the claims of all patents issued during the week before; and copies of any patent may be obtained for a few cents each. Consequently every invention patented in the United States is promptly disclosed to every manufacturer, inventor and technical expert in the country. Every new idea is promptly circulated among those most capable of utilizing it. Every patented invention, therefore, becomes potentially the cause of every useful and important invention. Inventors not only may improve on the specific idea embodied in the patent already issued and published; but also are inspired to work out their ideas for accomplishing the same result which the publication of the patent suggest to them. The publication of patents therefore, educates every manufacturer, inventor and technical expert throughout the country; starts trains of ideas which frequently lead to important improvements in radically different directions; and affords just the kind of information and inspiration needed to start lines of thought, investigation, and experimentation that develop transportation, the transmission of intelligence, the distribution of power, the art of healing, the control of disease, the increase of comfort, and all the things that in the phrase of the Constitution "promote the progress of science and useful arts." (Frederick P. Fish, XXVI, 27-28; Livingston Gifford, XIV, 4.)

In exchange for this invaluable public right, the patent owner receives merely the exclusive right to his invention for the limited period of seventeen years.

"A patent," said the president of the American Institute of Chemical Engineers, "is simply a contract between the Nation and an individual, the inventor. By that contract, the inventor discloses to the community at large the results of his intellectual work; by doing so, he enables others to get acquainted with his work and to im-

prove thereon, and this stimulates further research, invention, and enterprise. You will find that newly disclosed patents are usually followed in rapid succession by several improvements thereon, conceived by others, but patterned on the original invention. The inventor, in disclosing his secrets, confers a benefit on the Nation and the Nation in turn gives him for a rather short number of years the sole use of his invention, followed immediately afterwards by absolute confiscation in favor of the public. The period of this limited monopoly is none too long if we take into consideration the time it takes to develop an invention into commercial shape; in many cases inventions reach the money-earning stage only after the patents on which they are based have expired. In the meantime, the disclosures made by the inventor stimulate enterprise and further invention and induce the ideal form of competition—competition by improvement." (Dr. L. H. Baekeland, IV, 33-34.)

The exclusive right to his invention for the seventeen-year patent period is the only thing that the inventor receives in exchange for the immediate disclosure of his invention to the public, and the ultimate freedom to the public to use his invention without restriction. Obviously, therefore, the inventor will not be willing to take out a patent whereby these rights are surrendered to the public, unless the patent affords him the protection necessary to insure him the exclusive right in his invention for the full period of the patent.

"The inventor," explained a Washington patent lawyer, "has something which he may keep secret. He need not divulge his secret. He may, if he chooses, employ his invention in some practical art. But no one, no law, can force him to make, use or sell the thing which is the subject matter of his invention. He is, however, at the mercy of anyone who discovers his secret, and therefore is generally willing to accept the proposition of the Government that he shall divulge his secret, that he shall disclose it

by means of a patent. When he is asked to disclose this invention he is promised a reward. He is not promised that he shall have a right to make, use, or sell the invention. He had that always. He had that by the common law. He had that as a natural right. The bargain is, as I have said, that he shall have the right to exclude others from making, using, or selling the invention. There can be no feasible limitation upon the grant of exclusion within the terms of our laws and within the spirit of the Constitution." (Walter F. Rogers, XXVII, 11.)

Even under the existing patent system, inventors are reluctant to patent processes which, once disclosed to the public, can be easily copied with little chance of detection and prosecution for infringement of the patent.

"I have," said a conspicuous member of the Inventors' Guild, "several things which I found it would be practically impossible for me to get patents on which should be protected, and I am manufacturing them and have been for years, and they are in the nature of enamel processes, and the ingredients of those enamels and the formulae and the method of treating and handling are matters which have never been published, and to a large degree they tend to protect me. If the patent laws were such as they should be, if I really could get the protection that it was the intention of our patent law that I should get, I would have published all those things and gotten the patents, but I know from experience that the publication of those things, the full publication of them, would merely mean that I would be wiped out completely by the competition." (H. Ward, Leonard, IV, 23-24.)

"My first successful invention here in this country," said one of the leading chemists of the country, "was a new photographic process called 'Velox' paper. At that time I was not rich enough to take out a patent and to defend it at the same time. So I knew that my competitors would have swamped me by infringing the patent, and there would have been very little chance of my de

fending my rights. So I practiced it secretly, and after I made the business a success, then I sold out to a large corporation at my terms." (Dr. L. H. Baekeland, IV, 29.)

How disastrous would be the consequence of diminishing the inducement by which the disclosure of inventions is now induced can be understood only by recalling the conditions which preceded the existing patent system.

"Before the enactment of the patent statute," said a New York patent attorney, "when a man made an invention or a discovery the only way to make any profit out of it was to keep it secret. The moment he disclosed it, anyone else could use it. He may have spent a great deal of time and money in developing that invention or discovery, but his competitor, the moment he learned the secret could begin to use it without any handicap of the previous expense.

"So it resulted in inventions being kept secret. A typical instance is that of the discovery of the secret of making porcelain by John Frederick Bottger in 1710. The Elector of Saxony discovered that he had made this invention or discovery, and he locked him up in the Castle of Albrechtsburg and kept the drawbridge up, and swore the workmen to secrecy and admitted no one to this factory except he knew exactly what they wanted, and he was sure he would lose nothing by admitting them. But the secret was stolen and it was carried to France where it became the foundation of the Sevres pottery industry, and was also carried to other places.

"This necessity for keeping inventions secret worked against the public in several ways. In the first place, a manufacturer could not manufacture freely when he had to swear his men to secrecy and guard the factory from intruders and observe these other precautions, so that the cost of production was high and the output was low. And then, in the second place, there was usually some ingredient or some secret or step in a process which one man could attend to, and the discoverer would keep that to

himself, and he would perform that service. Now, he intended to give that secret to his son or best friend or possibly to the public when he died; but men seldom know when they are going to die, and so often the inventor would die unexpectedly, and this secret would pass away with him, and the result was there were many of these lost secrets or lost arts which may never be again discovered." (Edwin J. Prindle, X, 3-4.)

Modern instances of public loss resulting from the non-discovery of inventions are not lacking.

"I know of one instance," said an independent inventor, "where a man invented a process for recovering arsenic from arsenical ores. Arsenic is a nuisance, and by this process the nuisance was not only done away with, but the arsenic was made a valuable product. They erected a plant to recover it, and the plant was nearly finished when the man who conceived the process died. If he had had a patent and had made his idea public, the invention would have lived, but after he died nobody could complete the plant or operate it, and that process is lost until somebody else stumbles on it, and anything which is done to make the value of a patent less is simply going to add to the tendency of the inventor to be secretive instead of making public his invention. That is to my mind the underlying difficulty." (Cortlandt F. Carrier, Jr., XXIII, 31.)

The "compulsory license," as has already been shown, offers the continual possibility that the exclusive right of the patent owner may be destroyed, and that the patent owner may be compelled, against his will and upon terms not of his own choosing, to share his patent with another.

"There is a long line of decisions," said a representative of the Patent Law Association of Washington, "in the State courts and in the Federal courts pertaining to secret processes and secret inventions; and the rule of law is well settled, beginning back of the old Peabody-Norfolk case and running through 60 or 70 that I know of, that a

man who has invented a process or a machine has the right, if he can, to keep it secret and use it for his own purpose solely. If any employee, confidential or under a duty to that employer, discloses that invention to another, that other can be enjoined from the use of that invention thus surreptitiously given out. And you can pursue that to the last man in privity with the discloser and prevent his use of it. Those are State court decisions primarily. There are also Federal court decisions to that effect, and I know of no opinion to the contrary. That is what you would have, a hiding away of these inventions. You would check progress immediately. You would throw out of employment very promptly these large corps of skilled men whose whole time is devoted to improving and inventing new devices and machines and processes." (William W. Dodge, XXVII, 36-37.)

"Any quantity of inventions that are made," said another patent lawyer, "will, if there is a compulsory license provision in the law, be suppressed, because they will not be patented at all. The inventor will say, 'I am not going to run the risk of having to give compulsory licenses. I will take the chance of somebody else rediscovering this secondary idea of mine.' And that would hurt the patent system beyond expression." (Frederick P. Fish, XXVI, 27.)

The matter was summed up by one witness as follows:

"It has been the experience of everyone with whom I have talked who is familiar with the subject that the instant you adopt a compulsory license scheme it will have the effect of either stopping invention or hiding away inventions." (William W. Dodge, XXVII, 43.)

No greater deterrent to the disclosure of inventions can be imagined than the enactment of the proposal for "compulsory license" contained in the present Stanley Bill.

VIII.

FOREIGN EXPERIENCE WITH "COMPULSORY LICENSE."

In its report accompanying the Oldfield Bill in 1912, the House Patent Committee sought to support its proposal for "compulsory license" by foreign examples.

"In one form or another," said the Committee, "the laws of Great Britain, of Canada, of Germany and of France, as well as many other nations, lodge in the respective Governments the power to liberate the manufacture, sale and use of all patented articles. The ordinary method to accomplish this result is to fix a period of three or four years, within which the owner of the patent may set about supplying the subject matter of the patent to the public. If he fails to do so within the stated time, one of two forms of relief is provided for; in some countries the patent right is forfeited and the privilege of making and selling becomes a right common to every one. In other countries, the owner of the patent by his inactivity brings himself within the terms of a compulsory license clause. The most of these statutes contain exceptions and reservations; and in the last analysis whether or not the owner of the patent shall forfeit his rights or submit to the grant of a license is dependent upon a judicial inquiry and determination as to both the cause and effect of his inactivity. It should be said that in some countries it is within the discretion of the judicial officer to grant one or the other form of relief, either to forfeit the patent or compel the grant of a license." (Report, 4.)

All the testimony on this point before the Committee, however, conclusively established three points:

First, that the existing patent laws of the United States are superior to the patent laws of Great Britain, Canada, Germany, France and any other foreign nation.

Second, that from the point of view of the public, the

inventor, the manufacturer, and the consumer, the provisions of the Oldfield Bill and the present Stanley Bill regarding "compulsory license" are worse than the corresponding provisions of the patent laws of Great Britain, Germany, France and other foreign nations.

Third, that the experience of Great Britain, Germany, France and every other foreign nation that has tried anything resembling "compulsory license" as proposed by the Oldfield Bill and the present Stanley Bill proves that, from the point of view of the public, the inventor, the manufacturer and the consumer, "compulsory license" is disastrous.

The great superiority of the American patent law was conceded by all the witnesses before the House Patent Committee.

"The English," said a New York patent lawyer, "have followed our patent system and gradually adopted its principles, and not we followed theirs, and invention has been very much more stimulated in America than in England during this period." (Edwin J. Prindle, X, 10.)

"In so far as the German system departs from the American system," said an eminent patent authority, "I believe that in almost every respect, although not quite in all, it is inferior in its results. I think that the general impression here and in Europe of those who are most familiar with both systems is that I am correct in that statement." (Frederick P. Fish, XXVI, 4.)

"Our patent laws, although not perfect," said a famous inventing chemist, "are generally considered as a model of good patent legislation; they were conceived in a broad and fair spirit, and the best answer to those who find too much fault with them is that in all foreign countries, including Germany, whenever a modification has been made in their patent laws, the change has always brought them a step nearer to the American patent system." (Dr. L. H. Baekeland, IV, 34.)

"I do not know of any country in Europe, and I know

them all very well," said the treasurer of a world-famous concern, "where the American patent is not considered of three or four times the value of the patent from his own Government. An owner in Germany, takes more pride and attaches more value to an American patent than he does to his German patent. The same is true of France, England, Switzerland, Italy, and all of those countries." (M. Dorian, VIII, 26.)

Foreign patent laws in which "compulsory license" is provided for are all based upon principles fundamentally different from the American patent law.

"It is true," said a Washington patent lawyer, "that nearly all the foreign laws provide for compulsory working and compulsory license, but it is also true that the patent systems of all foreign countries rest upon a radically different basis from that of this country. Here a patent is a matter of right under the constitutional provision and the laws made pursuant thereto. Abroad it is a matter of grace. 'I, Edward, by the Grace of God,' etc., 'out of my benign condescension, grant this to you,' with a lot of restrictions. It is because of the restrictions that are in that grant, and because it is a matter of royal prerogative that they were able to do what they did do under the Lloyd George Bill, attach conditions subsequent to the patent already granted." (William W. Dodge, XXVII, 40.)

"This proposed provision of compulsory license," said a manufacturer with foreign experience, "is borrowed bodily from the English statutes, but without the safeguards of the English law. This provision may fit in well with the English needs and provisions, although there is room for doubt as to that, but it is entirely out of place in the United States and will not produce the results anticipated or promised." (M. Dorian, VIII, 19.)

"You can not compare that with the United States at all," said a patent lawyer of international reputation, "because the conditions as to the laws and the enforcement of the laws of Germany and France particularly are so

utterly different from ours. The rewards they offer for inventions are so much greater in some directions than the reward we offer that, even if it is subject to a set-off by compulsory license, the balance is very much in their favor, in my judgment." (Livingston Gifford, XIV, 15.)

The conditions which make it impossible to compare foreign patent laws with the American patent law, in respect to "compulsory license," cannot be here set forth in detail. They were briefly indicated, however, by several witnesses.

"Germany abandoned the compulsory-license law, looking only to compulsory license where the interest of the public demanded," said the president of the Patent Law Association of Washington, "Now the interest of the public in Germany is entirely different in many ways from the interest of the public in the United States. In Germany, for example, the railroads are controlled by the government, and it might be that some air brake or signaling device would be taken by the German Government in much the same way as inventions of guns are taken from inventors of this country under the principle of eminent domain, as set forth by Chief Justice White in the recent case of Crozier vs. Krupp." (Walter F. Rogers, XXVII, 18.)

The Patent Law Association of Washington summarized the whole matter with the statement:

"The reference to foreign countries is not in point, because those countries provide for far broader protection under their patents than does the United States, protecting in fact substitute structures as well as the main one, a provision which is not practicable nor wise in this country."

Even in countries whose patent laws rest on principles utterly contrary to American ideas and most congenial to the notion of "compulsory license," the provisions for "compulsory license," have proved in practice unsatisfactory.

"The experience under similar provisions of the patent laws of other countries," said the vice-president of the Association just mentioned, "has not been such as to commend such provisions to this country. It should be said in this connection that the patent laws of the countries which contain such provisions are founded upon an entirely different basis and theory than are our patent laws, and that under their theory these provisions are more equitable than they would be in this country. But even though this be so, the experience in those countries has not been such as to commend such provisions to us." (E. W. Bradford, XXVII, 47.)

"The Germans had working clauses," said the international authority recently quoted, "but by the efforts of the commissioner and some humble efforts on my own part, I think, we not only got this treaty through, which was made at the behest of this committee really, but the Germans have abolished the working clause in their own law. Great Britain has one, but they are absolutely sick of it." (Livingston Gifford, XIV, 15.)

This British law, which the House Patent Committee in 1912 seemed to rely upon as a precedent for its proposals, deserves attention.

"I am going to give you a little history about that law in England," said a manufacturer with large experience in Great Britain. "Its introduction into the English law was an attempt to give the British manufacturer and the British workingman an advantage over his foreign rivals; to confiscate for their benefit the inventions, discoveries, and processes of their more progressive and inventive American and German trade rivals. It was aimed at in the British patents issued to these foreign inventors, to acquire which by confiscation was the purpose of the law." (M. Dorian, VIII, 19.)

This statement is corroborated by Oliver Imray, Fellow of the Chartered Institute of Patent Agents, and Hugh Fletcher Moulton, Barrister-at-Law, in a paper which they

read before the Sixteenth Congress of the International Association for the Protection of Industrial Property, held in London, June 4th-7th, 1912.

"This alteration in the law," they said, "has had a serious and sweeping effect. It must be remembered that a patent has always been a somewhat doubtful property which capital has been very loath to invest in, because there are so many grounds on which a patent can be attacked. The passing of Section 27 has certainly introduced an additional and very serious and complicated ground on which the validity of every patent can be attacked after four years, thus rendering it far less secure as a property, destroying to some extent the monopoly of 14 years hereto granted to a patentee and deterring capitalists from financing the invention, and so introducing the industry into this country. * * *

"The results attained are infinitesimally small compared with the large number of existing patents, 100,000, even after deducting from this number those patents which may be considered of minor importance; and this, in itself, is an absolute proof of what a small call there was for this very serious and drastic alteration of the law, an alteration practically admitted by all countries from many years' actual experience to be a mistake. * * * For this very important result a slur on or an additional ground for questioning the validity of all the remaining patents stands out as a deterrent to the investment of capital for exploitng what may be very valuable inventions. * * * The effect of the passing of Section 27 of the Act of 1907, which we cannot help condemning as a retrograde step, has caused considerable agitation antagonistic to British patentees in all countries of the world."

Charles Dumont, delegate from the Grand Duchy of Luxembourg to the same Congress expressed the same view:

"I certainly do believe that I am rightly interpreting the meaning of the majority of the British patent agents

by saying that the public are not really benefiting from these requirements as to working."

The practical operation of the British patent law fully justifies these comments.

Any one, whether a British subject or a foreigner, can apply for an order under the British act. His motive is immaterial. It makes no difference whether he has any real interest in developing British industries or not. (Hatschek's Patents, 26 R. P. C., 239, 243; Johnson's Patent, 26 R. P. C., 57.) It is irrelevant whether the applicant shows that the order will develop any existing industry in the country, or lead to the establishment of any new industry. The order must be granted, even though the sole purpose of the applicant is to import foreign-made articles into the country free from the restraint of a British patent. (Hatschek's Patents, 26 R. P. C., 10, 243; Johnson's Patent, 26 R. P. C., 54, 47.) The lack of a demand in Great Britain for the article protected by the patent is not accepted as any excuse for failing to work it. If the article is made anywhere else in the world, the patent owner must set about creating a demand for it in Great Britain. (Hatschek's Patents, 26 R. P. C., 243; Boult's Patent, 26 R. P. C., 387.) It will not suffice the patent owner to show that he has made genuine and bona fide attempts to dispose of the patent, unless the Comptroller happens to agree that these efforts are all that a British business man should reasonably have exercised. The fact that a patent owner has done the best he can according to the standard of his own country or the country where the article originated, is not enough. (Boult's Patent, 26, R. P. C., 387; Weber's Patent, 26, R. P. C., 306.) It will not suffice that the patent owner simply advertised that he desires to dispose of his patent, or sent around circulars to manufacturers stating that he wished to sell his patent or to enter into some working arrangement with somebody to manufacture it in Great Britain. If the Comptroller finds that the advertisements

circulars or other offers were framed vaguely, and gave no intimation of the terms on which the patent owner was prepared to treat beyond the statement that such terms would be reasonable, the order must issue. (Hatschek's Patents, 26 R. P. C., 9, 248; Weber's Patent, 26 R. P. C., 305.) Finally, the Comptroller may decide that the unlucky patent owner, besides advertising and offering his patent to British manufacturers, ought also to have given demonstrations of the invention within Great Britain (Weber's Patent, 26 R. P .C., 308.) Considering that the expense of demonstrating an invention has been testified, by numerous witnesses before the House Committee on Patents, to amount frequently to hundreds of thousands of dollars, the hardship of this requirement is manifest.

These drastic conditions, be it noted, were all enforced in litigated cases by British courts intent on construing the law as humanely and liberally as it could be construed.

Nothing in the British experience regarding "compulsory license" affords any argument for its adoption by the United States. German experience, also, fails to furnish any such argument.

"Germany, which formerly had the working clause," said Dr. Baekeland, the president of the American Institute of Chemical Engineers, testifying before the House Patent Committee in 1912, "decided since last May to drop the working clause, because it has given them so many difficulties." (Dr. L. H. Baekeland, IV, 41.)

"Much has been said about Germany, and much that is not correct," added the president of the Patent Law Association of Washington, "The truth is that Germany is getting away from the very suggestions contained in these proposed bills and now has a "compulsory license only where matters of 'public policy' and 'public interest' are involved, as stated by Dr. Baekeland." (Walter F. Rogers, XXVII, 12.)

The purpose of this reservation in the German law, as already has been explained, was chiefly to enable the

Government to obtain for its own use rights under patents applicable to Government activities. This right, it has been explained, is already reserved to the United States Government under the existing American patent law, and may now be exercised upon the principle of eminent domain. (Crozier vs. Krupp, 224 U. S., 290, 1912.) The proposal for "compulsory license," it must be remembered, goes far beyond this feature of the German patent law and the existing American patent law, and seeks to establish over every class of patents a kind of eminent domain for the mere private, selfish purpose of whomsoever seeks to apply for a "compulsory license."

The experience of foreign nations generally was summarized by Messrs. Imray and Moulton in their paper before the International Asociation for the Protection of Industrial Property above quoted:

"The compulsory working of patents was at one time almost universal in countries having patent laws, with the exception of Great Britain and some of its Colonies, and of a few other countries. Even the United States at one time had compulsory working, but soon recognized that this was not for the good of the State and abandoned the system."

Nothing in the example of foreign nations indicates that any advantage will be obtained by incorporating into the American patent law the proposal for "compulsory license."

IX.

WILL "COMPULSORY LICENSE" CONSERVE COMPETITION AND INDEPENDENT BUSINESS AND THE PUBLIC WELFARE?

The American patent system has so long been a matter of course that it is hard to realize how great a boon it is.

"No country has benefited more by its patent system than the United States," said the president of the American Institute of Chemical Engineers, himself of foreign extraction, addressing the House Patent Committee in 1912, "Compare the tremendous industrial development of such nations which have liberal patent laws, like the United States, Germany, and England, with that of the Latin countries, where patent laws are less favorable to the inventor. There is one civilized country, Holland, which up till recently had no patent law whatever and allowed the unrestricted use of any invention. This ought to have been the paradise of the infringers; it was easy enough to use freely in Holland processes patented in other countries, and to distribute from there infringing goods to all the countries of the world. Yet what was the result? Holland, with her highly developed commerce, her abundant money supply, with a race of intelligent and enterprising men, remained industrially undeveloped, and still ranks as one of the least among the industrial countries of the world. Why? Because there was no incentive to saddle oneself with all the risks and outlays of starting a new enterprise or of improving methods of manufacture, knowing beforehand, that, in case of success, one's neighbor could simply do the same thing without any restriction whatever." (Dr. L. H. Baekeland, IV, 33.)

The great inducement which the existing patent laws give to competition was emphasized by several witnesses before the House Patent Committee:

"A patent law, easily enforceable—enforceable by the law as well as by the State—is the best and most effective policy for furthering some competition of the right kind—competition by improvement," said the famous chemist last quoted. (Dr. L. H. Baekeland, IV, 28.)

"The best weapon against monopoly that can ever be made," said a leading independent electrical inventor, "is the efficient patent system that will give the small man who has devised something that is a very great improvement—to give him such a position that he is going to be able to develop a new line of industry, notwithstanding the fact that the old line has enormous wealth and power." (H. Ward Leonard, IV, 25.)

"But for the patent laws," said a leading patent lawyer of Washington, "there would, probably, be but one printing-press company, but one typewriter company, but one electric company, but one adding-machine company, but one of many now listed in the thousands. Where there is now one combination, there would be scores." (XXVII, 10; Walter F. Rogers.)

"A patent, above all things," said an officer of the Inventors' Guild, "is the best and the simplest and the surest way to guard against monopoly. An effective patent system is absolutely the best way to insure this company against the evils of monopoly. The patent system as it was planned in this country and as it would be effective as planned, is the best possible insurance against the evils of monopoly, because there is nothing so revolutionary as a good invention. A good invention necessarily is revolutionary as compared with the methods that have preceded it, and it is necessarily an efficient method of accomplishing and a more efficient method of accomplishing that which has been accomplished in the past in a cruder way. It is a saving to the Nation and a benefit to the Nation and a source of wealth to the Nation. I believe that outside of the crop which grows out of our soil that there is no single source which has produced such great wealth for

this Nation in the past as the patent system." (H. Ward Leonard, IV, 7-8.)

New and struggling concerns find in the existing patent laws their best weapon with which to compete against strongly entrenched businesses.

Specific instances of young concerns that owe their rise from small beginnings to great prosperity by means of inventions protected by the patent laws, were mentioned by numerous witnesses.

"Just as a concrete illustration," said a vice-president of the Patent Law Association of Washington, "of what the patent system really means to this country and to these people, I want to call to the attention of the committee the situation at Waynesboro, Pa., a city with which I am familiar because I have for a long time been counsel for several of the manufacturing concerns located there. It is a comparatively small town of 5,000 or 6,000 inhabitants located at the foot of the Blue Ridge Mountains, in Franklin County, Pa., in the heart of a most fertile agricultural section. You will find located there the Frick Co., a concern that employs perhaps 600 men; the Gieser Manufacturing Co., that employs, I presume, as many or more; the Landis Tool Co., employing perhaps 400 men; the Landis Machine Co., employing a smaller number, perhaps 200; the Fred Frick Clock Co., a prosperous concern; and a number of other smaller concerns whose business is entirely based upon patented articles. The business in each instance was begun in a small way, by the manufacture of the inventions of local men; begun by local capital; built up by the merits of the inventions and the ability and enterprise of those at the head of the concerns. In each and every instance, I think, the stock is owned almost wholly by the townspeople, and the country people around that locality. I am told that on the occasion of the annual stockholders' meeting of any one of those companies one would suppose a town meeting was being held; that dozens and dozens of farmers, merchants, and others,

scattered over the country, own 3, 4, 5, 10, 20 or 25 shares of the stock in those respective companies, and they all attend the stockholders' meetings and take an active interest in the affairs of the companies.

"Now, gentlemen, those companies have each grown from an insignificant beginning—practically nothing—until today each and every one of them is an important factor in the industrial and material welfare and prosperity of that community. With 1,500 to 1,800 artisans having regular and constant employment at good wages, with the earnings of those concerns being distributed among the people of the community in the way of dividends, with the market for farm produce and garden produce thus created right at their doors, the merchant, the farmer, and all classes are wonderfully prosperous and consequently happy. No one can deny that that community has certainly been benefited more by the patent laws of this country than by any other laws upon the statute books.

"That is but one example. It can be multiplied indefinitely throughout the State, throughout adjoining States; and I can give you other instances in the State of Indiana where I know of localities and communities that have been greatly benefited in identically the same way—growing from practically exclusively agricultural communities to communities with important manufacturing and commercial interests, by some small beginning in the manufacture of a patented article that has grown and brought these great benefits to such communities." (E. W. Bradford, XXVII, 45.)

"There are many businesses in the United States that have built on the inventions of their presidents," said another patent lawyer. "You take the Ferracute Machine Co. of Bridgeton, N. J., the company which makes the Government presses for the mints for coining metals, and that company is built on inventions of the president of the company, Mr. Oberlin Smith. * * * The Potter & Johnston Co. of Pawtucket, R. I., which makes metal

shaping machines; that is also built on the inventions of Messrs. Potter & Johnston. They are both prosperous. * * * Many inventors are employed by companies that put their inventions into their own businesses, and they get bonuses for the inventions, or they get permanently larger salaries for the inventions which they make, and in that way the company is able to keep abreast of competition, and the inventor himself is assured an adequate return. * * * The Calculagraph Co. of New York, which makes the machine for the telephone people, to measure the length of time that you talk, when you are charged according to time; the business of that company is based on the invention of the president, Henry Abbott. He is president of the company and built up the business. He not only made the invention, but introduced it and built up the system of manufacturing it. There are very many such companies in the United States where the inventor directly gets the benefit of his invention." (Edwin J. Prindle, X, 19-20.)

How "compulsory license" would destroy competition and build up monopoly was well described by the patent counsel of a well-known manufacturing concern:

"This act, as a whole, is for the benefit of the big fellow as against the little fellow. First, by increasing litigation. The big fellow can stand it; the little fellow can not. In fact, the big fellows are accused of fomenting litigation to the detriment of the little fellows. There can not be any doubt but what this act will increase litigation enormously." (Livingston Gifford, XIV, 19.)

The demoralization which "compulsory license," would introduce into the manufacturing of highly developed machines, for which a considerable number of patents had been used or experimented with, is easy to guess.

"When the Government says to the inventor at the end of two or three or four years," said the president of the Patent Law Association of Washington, "you must grant a license to anyone who asks for it or to anyone

with whom a bureau official or a court thinks should have it or you must work your invention or lose the patent; that is simply, in effect, limiting the term of the patent to that time and putting a ruinous burden on all excepting those favored few who with great capital are enabled in some manner to work many patents and to vigorously contest all applications for licenses.

"Such a provision is also on its face a temptation to oppression, a temptation to perjury, and, in its practical workings, would put into the hands of the bureau official, with no experience whatever in the property rights involved in patents, the settlement and disposition of those property rights; and, if the jurisdiction be given, a court invites additional litigation, which will be only a guessing contest.

"By the proposals of this bill, H. R. 23417, if they should become law, no matter how near the goal, the inventor may see all his hopes slip away into the hands of rivals who have given nothing to the public, into the hands of the very combinations his invention would ultimately have checked." (Walter F. Rogers, XXVII, 11.)

"You will bear in mind," explained a Boston patent lawyer, "that there is not a machine of the larger type made by Brown & Sharpe or any of the concerns doing the big business of this country that is not based upon a long line of patents. Some of them expired years ago, but there are many patents on each of the present machines. Take the automatic loom, for instance. If you look at a loom, you will find upon it a list of 15 or 20 patents. The loom is not patented as a whole under one patent. It may be that there are half a dozen patents on some individual section of the machinery; half a dozen ideas so interwoven that while by analysis you can separate one from the other, you can not in looking at the section, pick out one patented combination without seeing at the same time two or three more patented combinations interwoven with it. No machine that is of any great conse-

quence is protected by a single patent. That is not the way things work out, and it is not a condition that arises in manufacturing to a practical extent.

"The result is that even if a manufacturer has a patent which might be used on a particular machine, made by him, but which for any reason is not used, no other manufacturer could by obtaining the right to use the patent in question incorporate it into that machine without at the same time obtaining the right to use a number of other patents which are used in the machine * * *.

"The mere possibility of a compulsory license will be fatal. It is obvious that if a situation is developed in which there is no courage to develop inventions, they will amount to nothing if made and progress will cease. But more than that, if such a situation is created, there will be no encouragement to make inventions, and men will no longer make them. Invention will cease. * * *

"I should feel it was my duty, if there were any compulsory license clauses in the law, to say right away to my clients, 'Be careful; change your entire system of invention. Get up just what you need, and nothing else, because everything that you get up and do not use—and you can not use one-tenth of what you get up,—may be taken away from you, to the great advantage of your competitors and to your great loss." (Frederick P. Fish, XXVI, 14, 24, 25.)

Large-scale invention and industrial experimentation, it has been shown, are necessary in order to solve the problems of existence presented in the immediate future. "Compulsory license," it has been shown, would utterly demoralize such activity. How "compulsory license" would surely hurt the public welfare, one witness explained by citing an instance coming under his own observation:

"It is for the interest of the people at large to introduce, to make, and promote and extend inventions. Those

are the things upon which too little stress has been placed in the discussions before the committee. * * *

"I mean such world-moving affairs as this. You take the manufacture of nitric acid and nitrous products from the air. The introduction of that into the United States, everybody will agree, will be a wonderful benefit, because it ultimately means the cheaper manufacture of fertilizers. Fertilizers now come from deposits in Chile or Peru that are gradually being absorbed, and it is estimated that in the course of 40 or 50 years they will be used up. The inventors now are endeavoring to introduce this wonderful industry of getting the nitrogen from the air for the purpose of manufacturing nitric acid and fertilizers. Well, if you wish to introduce that into the United States, you must offer the inducement to have it introduced into the United States. * * *

"I had to adjourn negotiations when I came here, involving an enormous sum of money—involving the introduction into this country of an industry which is established abroad, and which it is for the interest of everybody in the United States to have taken up in this country. It involved an investment of an enormous amount of money here for the first plant, even to determine whether the thing is worthy of being advanced into other plants. If I were to tell the United States representatives of those people that this bill was likely to pass, they would drop those negotiations in a minute, and that industry would not be introduced into the United States and would not be developed here. I cannot mention the names of those people, but it is a fact and it is perfectly appalling." (Mr. Livingston Gifford, XIV, 22, 14.)

X.

SHOULD PROPERTY IN INVENTION, ANY MORE THAN ANY OTHER FORMS OF PROPERTY, BE SUBJECT TO CONFISCATION?

The present Stanley Bill, in its provisions for "compulsory license" already described, stigmatizes as improper, whenever patents are involved, what is permissible according to the existing law and proper according to legitimate business practice, whenever other forms of property are involved.

A Washington patent lawyer proved this before the House Patent Committee in 1912 by citing the example of the farmer:

"If he elects to keep his horse or his ox in idleness, no one would question his right. He may own a fertile and most productive field, and elect not to cultivate it. No one questions his right to do as he will with his own, so long as he keeps within the general laws. Why should common rights accorded to everybody in the enjoyment of every other class of property be denied to the owner of patent property? He acquired his title honestly. He complied with every condition of the law. He has dedicated his invention to the public for its free use and enjoyment at the end of the brief period of 17 years. Why should he be molested in the enjoyment of his own as may suit his own ideas and purposes? The Government has given him nothing; he has taken nothing from the public. If the invention is of value, the debt is due from the public to the inventor and not from the inventor to the public. It would seem, therefore, that the proposition to deprive him of the enjoyment of his own as he sees fit is proposing an imposition on private rights of the most objectionable form. Nor would the interests of the public be served by imposing conditions and restrictions which would discourage the inventor and put a damper upon him and

those associated with him in producing and developing his invention." (E. W. Bradford, XXVII, 51.)

"No one proposes," said a well-known inventor and editor, "that the principle of 'compulsory license' be applied to landed estates or to any other form of property, however it may have been acquired. Patents are treated as if they were privileges, when, as a matter of fact, a patent to a valid invention of economic and social value is merely a public recognition of an inherent right. If there is reason why the inventors should be compelled to divide their property rights with others, who have in no way contributed to their development, especially along the lines proposed, there is even greater reason why the same principle of extraction should be made operative against other forms of private property rights. It does not promote the progress of the useful arts to expose the inventors to dangers which they cannot meet." (Joseph J. O'Brien, XXVII, 97.)